DUSTER

1 Engine and peripherals

13B DIESEL INJECTION

DCM 1.2 injection
Program No.: 4C
Vdiag No.: 08

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V1 **Edition Anglaise**

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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1. SCOPE OF THIS DOCUMENT

This document presents the fault finding method applicable to all computers with the following specifications:

Vehicles: **LOGAN / SANDERO / THALIA 2 / SYMBOL 2**
Engines**: K9K 718, 740, 790, 792, 794, 796, 880, 890.**
Function concerned: **K9 DELPHI (DCM 1.2) COMMON RAIL Direct diesel injection**

Name of computer: **DCM 1.2 injection**

Program No.: **4C**

Vdiag No.: **08**

2. PREREQUISITES FOR FAULT FINDING

Documentation type:

Fault finding procedure (this manual):
– Assisted fault finding (integrated into the **diagnostic tool**), Dialogys.

Wiring Diagrams:
– Visu-Schéma (CD-ROM).

Type of diagnostic tools:
– **CLIP + sensor**

Special tooling required:

Special tooling required	
Diagnostic tool	
Multimeter	
Elé. 1590	112-track computer bornier
Elé. 1681	Universal bornier
Mot. 1711	Injector flow measuring kit

3. REMINDER:

Procedure
To run fault finding on the vehicle computers, switch on the ignition.
Depending on the type of vehicle equipment, proceed as follows:

For vehicles with radio frequency remote control/key,
switch on the ignition with the key.

To cut off the + after ignition feed, proceed as follows:

For vehicles with radio frequency remote control/key,
switch off the ignition with the key.

Faults

Faults are declared as either present or stored (depending on whether they appeared in a certain context and have disappeared since, or whether they remain present but have not been diagnosed within the current context).

The status of the fault, **present** or **stored**, should be taken into consideration when the **diagnostic tool** is used after the **+ after ignition feed** has been activated (without any of the system components being activated).

For a **present fault**, apply the procedure described in the **Interpretation of faults** section.

For a **stored fault**, note the faults displayed and apply the **Notes** section.

If the fault is **confirmed** when the instructions in the Notes section are applied, the fault is present. Deal with the fault.

If the fault is **not confirmed**, check:
– the electrical lines which correspond to the fault,
– the connectors on these lines (corrosion, bent pins, etc.),
– the resistance of the faulty component,
– the condition of the wires (melted or cut insulation, wear).

Conformity check

The aim of the conformity check is to check data that do not produce a fault display on the **diagnostic tool** when they are inconsistent. Therefore, this phase makes it possible to:
– run fault finding on faults that do not have a fault display, and which may correspond to a customer complaint,
– check that the system is operating correctly and that there is no risk of a fault recurring after repair.

This section gives the fault finding procedures for the statuses and the parameters and the conditions for checking them.

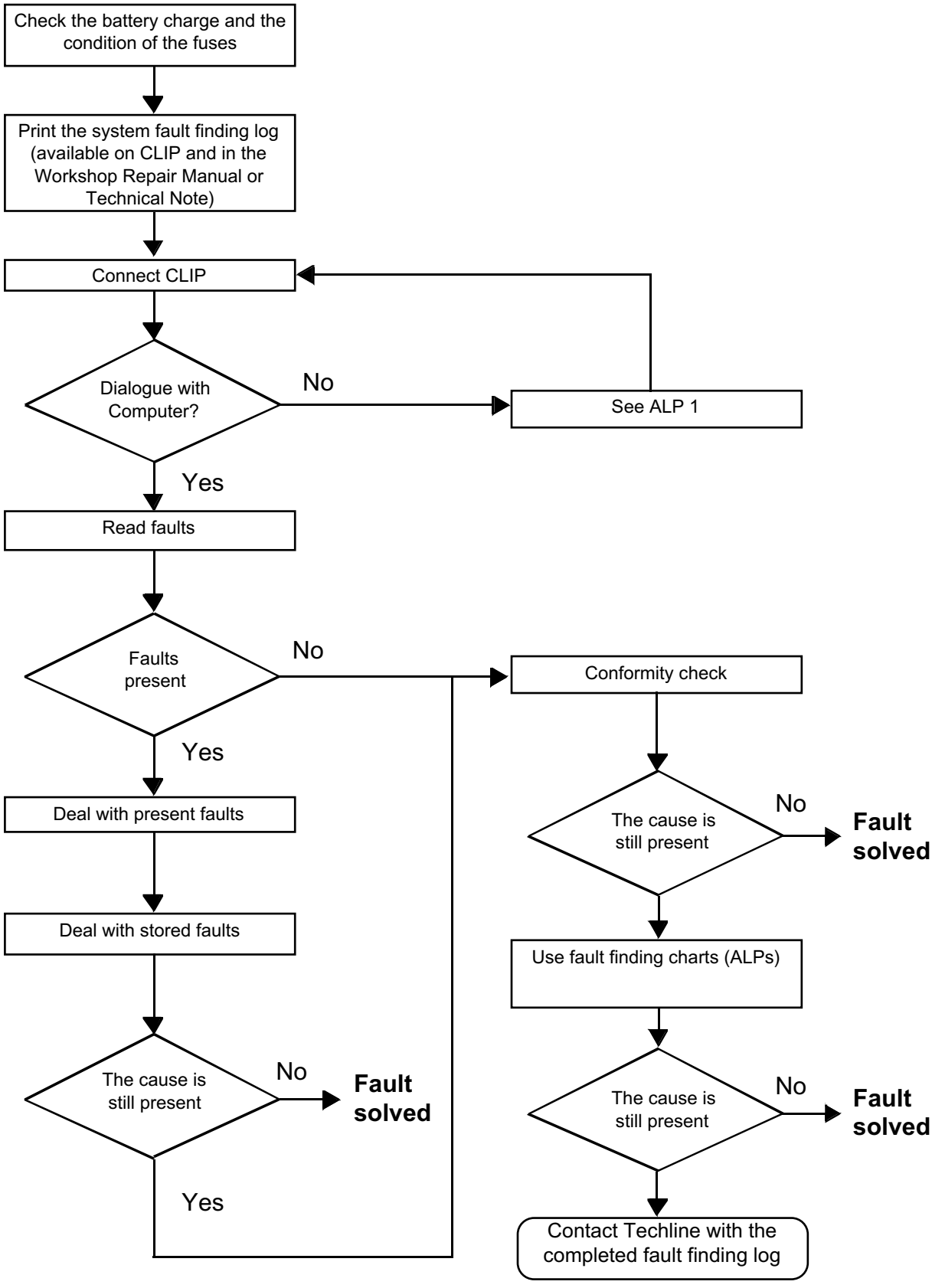
If a status is not behaving normally or a parameter is outside permitted tolerance values, you should consult the corresponding fault finding page.

Customer complaints - Fault finding chart

If the test with the **diagnostic tool** is OK but the customer complaint is still present, the fault should be dealt with by **customer complaints**.

A synopsis of the general procedure to follow is provided on the following page in the form of a flow chart.

4. FAULT FINDING PROCEDURE



4. FAULT FINDING PROCEDURE (continued)

Wiring check

Fault finding problems
Disconnecting the connectors and/or manipulating the wiring may temporarily clear the cause of a fault.
Electrical measurements of voltage, resistance and insulation are generally correct, especially if the fault is not present when the analysis is made (stored fault).

Visual inspection
Look for damage under the bonnet and in the passenger compartment.
Carefully check the fuses, insulators and wiring harness routing.
Look for signs of oxidation.

Tactile inspection
When handling the wiring, use the **diagnostic tool** to detect any change in fault statuses from "stored" to "present".
Make sure that the connectors are firmly secured.
Apply light pressure to the connectors.
Twist the wiring harness.
If there is a change in status, try to locate the source of the fault.

Inspection of each component
Disconnect the connectors and check the appearance of the clips and tabs, as well as the crimping (no crimping on the insulating section).
Make sure that the clips and tabs are properly locked in the sockets.
Check that the clips or tabs have not been bent back during connection.
Check the clip contact pressure using an appropriate model of tab.

Resistance check
Check the continuity of the complete lines, then section by section.
Look for a short circuit to earth, to **+ 12 V** or with another wire.

If a fault is detected, repair or replace the wiring harness.

5. FAULT FINDING LOG

IMPORTANT

IMPORTANT
All faults involving a complex system call for thorough diagnostics with the appropriate tools. The FAULT FINDING LOG, which should be completed during the fault finding procedure, ensures a record is kept of the procedure carried out. It is an essential document when consulting the manufacturer.

IT IS THEREFORE MANDATORY TO FILL OUT A FAULT FINDING LOG EVERY TIME THE TECHLINE OR THE WARRANTY RETURN SERVICE ASKS FOR IT.

You will always be asked for this log:
– when requesting technical assistance from the Techline,
– when requesting approval before replacing parts for which approval is compulsory,
– to be enclosed when returning monitored parts on request. The log is needed for warranty reimbursement, and enables better analysis of the parts which have been removed.

6. SAFETY INSTRUCTIONS

Safety rules must be observed during any work on a component to prevent any material damage or personal injury:
– make sure that the battery is properly charged to avoid damaging the computers with a low charge,
– use the appropriate tools.

I - RISKS ASSOCIATED WITH CONTAMINATION

The high pressure direct injection system is highly sensitive to contamination. The risks caused by the introduction of contamination are:
– damage to or destruction of the high pressure injection system,
– a component seizing up,
– a component losing its sealing.

All After-Sales operations must be performed under very clean conditions. This means that no impurities (particles a few microns in size) should have penetrated the system during dismantling.

The cleanliness guidelines must be applied from the filter through to the injectors.

What are the sources of contamination?
– metal or plastic chips,
– paint,
– fibres:
  – from cardboard,
  – from brushes,
  – from paper,
  – from clothing,
  – from cloths,
– foreign bodies such as hair,
– the ambient atmosphere,
– etc.

IMPORTANT
Cleaning the engine using a high pressure washer is prohibited because of the risk of damaging connections. In addition, moisture may collect in the connectors and create faults in the electrical connections.

II - INSTRUCTIONS TO BE FOLLOWED BEFORE CARRYING OUT ANY WORK

IMPORTANT
Before carrying out any work on the high pressure injection system, protect:
– the accessories belts,
– the electrical accessories, (starter, alternator, electric power-assisted steering pump),
– the flywheel surface, to prevent any diesel from running onto the clutch friction plate.
– timing chain

Ensure that you have plugs for the unions to be opened (set of plugs available from the Parts Department). Plugs are to be used only once. They must be discarded after use (once used they are soiled and cleaning is not sufficient to make them reusable). Unused plugs must be thrown away.

Ensure that you have hermetically resealable plastic bags for storing removed parts. Parts stored in this way will be less susceptible to the risk of contamination. The bags are to be used once only, and discarded after use.

Use lint-free cleaning cloths (cloth part reference **77 11 211 707**). The use of ordinary cloth or paper is not permitted. They are not lint-free and could contaminate the fuel circuit. A lint-free cloth should only be used once.

Use fresh cleaning agent for each operation (used cleaning agent is contaminated). Pour it into a clean receptacle.

For each operation, use a clean brush in good condition (the brush must not shed its bristles).

Use a brush and cleaning agent to clean the unions to be opened.

Blow compressed air over the cleaned parts (tools, workbench, the parts, unions and injection system zones). Check that no bristles are left.

Wash your hands before and during the operation if necessary.

When wearing leather protective gloves cover them with latex gloves to prevent contamination.

III - INSTRUCTIONS TO BE FOLLOWED DURING THE OPERATION

As soon as the circuit is open, all openings must be plugged to prevent impurities from entering the system. The plugs to be used are available from the Parts Department. The plugs must not be reused under any circumstances.

Seal the pouch shut, even if it has to be opened shortly afterwards. The ambient atmosphere carries contamination.

All components removed from the injection system must be stored in a hermetically-sealed plastic bag once the plugs have been inserted.

Using a brush, cleaning agent, air gun, brush or normal cloth is strictly prohibited once the circuit has been opened. These items could allow contamination to enter the system.

A new component replacing an old one must not be removed from its packaging until it is to be fitted to the vehicle.

System outline

The **DCM1.2** injection system used on the **K9K** engine is an electronically managed high pressure injection system. The fuel is compressed by a high pressure pump then stored in a rail that feeds the injectors. Injection takes place when a current pulse is applied to the injector holders.

The injection flow is proportional to the rail pressure and to the applied pulse length, and the start of injection is synchronised with the start of the pulse.

The system includes two subsystems, which have different fuel pressure levels:
– the low pressure circuit contains the tank, the diesel fuel filter, the transfer pump and the injector holder return pipes,
– the high pressure circuit contains the high pressure pump, the rail, the injector holders and the high pressure tubes.

The injection system contains a number of control sensors and actuators that enable the entire system to be controlled and monitored.

Functions provided

Function: Fuel supply management (timing, flow and pressure).

Quantity of fuel injected and injection timing setting
The injection checking parameters are the quantities to be injected and their respective timing.
These are calculated by the computer using signals from the following sensors:
– Engine speed (crankshaft + cam lobe for synchronisation).
– Accelerator pedal.
– Turbocharging pressure and air temperature (Turbocharger pressure).
– Coolant temperature.
– Air temperature.
– Air load (Flow and Pressure).
– Rail pressure.

The quantities to be injected and their respective timing are converted into:
– a reference tooth,
– the time between this tooth and the start of activation,
– the time for which the supply to the injector holder is on.

Each injector holder is controlled by an electrical current which is sent according to previously calculated data. The system makes one or two injections (one pilot injection, one main injection).
The general principle is to calculate an overall injected flow, which is then divided into the main injection flow, and a pilot injection flow to promote proper combustion and help reduce pollutant emissions.

An accelerometer is used to monitor some of the fuel injection deviation. This has several roles:
– Protecting the engine by detecting injection leaks (disabled on the basic version).
– Checking the pilot quantity by measuring deviation and variation.

The quantity of fuel injected and the exact moment the mixture ignites can be readjusted by changing both the injection duration and advance.

Rail pressure check
The quality of combustion is influenced by the size of the atomised droplets in the cylinder.

In the combustion chamber, smaller fuel droplets will have time to burn fully, and will not produce smoke or unburned particles. To meet the pollution requirements, the droplet size, and therefore the size of the injection holes must be reduced.

With smaller holes, less fuel will be able to be introduced at a given pressure, which limits the power. To offset this disadvantage, the quantity of fuel injected must be increased, which means increased pressure (and more holes in the injector nozzles).
For the **DCM 1.2** injection system, the pressure reaches **1400 bar - 1600 bar** in the rail and must be constantly regulated. The measuring circuit comprises an active pressure sensor on the rail connected to an analogue port on the computer.

The high pressure pump is supplied at low pressure (**5 bar**) by a built-in transfer pump. It supplies the rail, the pressure of which is controlled by the fuel flow actuator (**IMV**) for filling, and by the injector valves for discharging. This compensates for pressure drops. The fuel flow actuator enables the high pressure pump to only supply the quantity of diesel fuel required to maintain the rail pressure. This mechanism minimises the heat generated and improves engine output.

In order to discharge the rail using the injector valves, the valves are actuated by short electrical pulses which are:
– short enough in amplitude not to open the injector (and pass through the return circuit from the injectors),
– long enough in time to open the valves and discharge the rail.

The fuel surplus is sent back to the fuel filter or the tank, according to its flow. If there is no fuel flow actuator control, the rail pressure is limited by a discharge valve fitted on the pump.

New pump chamber filling procedure (pump boosting)
The pump lubrication goes through a booster cycle during which the pump is filled and pressurised before "transferring" the diesel fuel to the rail.

This lubrication goes through programming called **"new pump chamber filling"**, which prohibits starting for approximately **10 seconds**, which is the time required to fill the pump and to start if the key is released before the end of this "first starting" phase. "Power latch" is not necessary before attempting to start the vehicle again.

This procedure runs when a **computer is replaced** if the parameters relating to the rail pressure have not been copied into the new computer, or when an injection computer is reprogrammed.

Idling speed regulation
The computer handles the calculation of idling speed. This has to take account of the instantaneous power level to be supplied, according to the status of the following components:
– engine coolant temperature,
– gear ratio engaged,
– battery charge,
– electrical consumers (Additional heating, Air conditioning, Fan Unit, electric windows, etc.) active or inactive,
– system faults detected.

Individual injector correction (C2I)
The **DCM 1.2** system injectors must be calibrated with corrective values to adjust their flow precisely. Each injector is calibrated for different pressures on a test bench, and its specifications are shown on a label attached to the body of the injector holders. These individual correction values are entered in the computer EEPROM, which can then actuate the injectors by taking into account their manufacturing dispersion.

Measuring the angular position (Cylinder reference sensor)
The angular position is measured using a magneto-inductive sensor triggered by machined teeth on the crankshaft flywheel. This flywheel has sixty teeth separated by six degrees minus two missing teeth, that form a notch.

A second sensor (Hall effect) triggered by a machined tooth on the high pressure pump drive pulley (synchronised with the camshaft), that rotates at half the engine speed, supplies an injection cycle running signal. When comparing the signals from these two sensors, the APS (Angular Position Subsystem) module of the computer is capable of providing details of the synchronisation components to the system:
– the angular position of the flywheel
– the engine speed, the number of the active injector
– the stage of the injection cycle.
This module also supplies the system with the rotation speed signal.

Flow capacity function (VLC)
Because of the combination of several parameters such as the diesel fuel temperature, part wear, clogging of the diesel filter etc., the system limit may be reached during its service life. If this happens, the rail pressure cannot be maintained because the pump lacks the necessary capacity. If the pump lacks the necessary capacity, this programming will therefore reduce the requested flow to a value that will enable the pressure monitoring system to control the pressure again.
The customer may have noticed a loss of vehicle performance when this program is activated (confirmed by the **Flow capacity function** status). **This is part of normal operation.**

Function: Air flow management

EGR valve control
The EGR system (Exhaust gas recirculation) comprises a proportional EGR valve, with a built-in valve position feedback potentiometer. The EGR valve position is controlled by the potentiometer in a closed loop and/or by changes in the estimated air flow.

Calculating the air flow
The **K9K 790 and 794** engines are not fitted with an air flowmeter. Instead, the amount of fresh inlet air is evaluated based on the values supplied by the surrounding systems.

The (theoretical) air load is calculated using a model with various calculation parameters, which are:
– the inlet air temperature measured by a sensor located after the turbocharger and/or after the exchanger (if fitted),
– the turbocharging pressure,
– the atmospheric pressure (external air),
– the EGR valve position,
– the fuel flow,
– the engine speed.

The atmospheric pressure sensor is optional. If fitted, it sends back a signal relating to the atmospheric pressure to an analogue port on the micro-controller. If not, atmospheric pressure is recovered based on the turbocharger pressure and the engine field.

For **K9K 792 and 796** engines, the flow of fresh air entering the engine is given by a hot wire ratiometric sensor. This flowmeter is used to manage the amount of exhaust gas to be recirculated to ensure optimum recirculation rates. A fresh air temperature sensor is integrated into the flowmeter. Air flow measurement allows closed-loop control via the EGR valve.

Turbocharger control

K9K 796 engine:
The turbocharging system is made up of a solenoid valve which is used to control the wastegate to adjust the absolute pressure of the inlet circuit.

K9K 790, 792, and 794 engines:
The turbocharger system is controlled by the inlet pressure and does not need to be controlled by the computer.

Pre-postheating control
Pre/postheating control consists of controlling the heater plugs and preheating warning light on the instrument panel. The heater plugs are activated by a preheating unit (controlled by the injection computer) and power is supplied by the battery. After the ignition is switched on a preheating delay is activated. The warning light comes on for a time dependent on the battery voltage, atmospheric pressure and coolant temperature. If the temperature is below a certain threshold, a postheating function can be used to improve the combustion stability, and consequently engine operation (reducing unburnt particles and pollutant emissions).

Functions included

Air conditioning management assistance
For models with air conditioning, the **DCM 1.2** system allows deactivation of the air conditioning under certain operating conditions:
– when requested by the driver,
– when starting the engine,
– if the engine overheats (in order to reduce the power the engine has to supply),
– when the engine speed is kept at a very high level (to protect the compressor),
– during transition phases (e.g. high acceleration demand for overtaking, anti-stalling and moving off). These conditions are only taken into account if they do not occur repeatedly, so as to prevent system instabilities (erratic deactivation),
– when certain faults appear.

Cold loop air conditioning management
The air conditioning is the cold loop type and it is managed by the injection computer, which must:
– manage the cooling request according to passenger compartment commands and the refrigerant pressure value,
– calculate the power absorbed by the compressor (from the refrigerant fluid pressure).
– determining the **fan unit** commands according to the vehicle speed and the refrigerant fluid pressure.

The driver requests the air conditioning to be switched on by means of the ventilation selector coupled to a switch. This cooling request is authorised or refused according to the refrigerant pressure measured. If this pressure is outside the operating limits, the cold loop program is not activated.

Note:
Fan unit control requests are made from the injection computer.
These requests depend on the air conditioning, but also on the engine coolant temperature and vehicle speed.

Thermal regulation of the passenger compartment heating circuit
Engines with direct injection systems are characterised by fuel being injected directly into the combustion chamber. This leads to heat being lost through the upper part of the engine and consequently, the cylinder head cooling circuit is smaller in size.

The effect of this is that the temperature of the coolant which flows through this circuit rises more slowly. This coolant is also used by the passenger compartment heating system. In very cold conditions, it is therefore difficult to achieve a comfortable passenger compartment temperature quickly.

To limit the time taken to warm up the system, air heating resistors, called passenger compartment heating resistors (RCH), are fitted into the passenger compartment heating circuit. The **DCM1.2** injection computer determines the need to control, and physically controls the passenger compartment heating resistors. The injection computer determines the power control limitation of the passenger compartment heating resistors based on the alternator charge on one hand, and the inhibition of passenger compartment heating resistors based on engine speed, load and vehicle speed, on the other.

Instrument panel display
The computer manages the data display on the instrument panel relating to engine operation.
There are six functions concerned:
– the **On board diagnostics MIL** (Malfunction Indicator Lamp),
– pre-postheating,
– coolant temperature,
– **Level 1** (non-critical fault) and **Level 2** (emergency stop) engine faults.
– detection of water in the fuel (depending on instrument panel).
These six functions are represented using four indicator lights.

Pre-postheating and electronic fault (level 1) indicator light
This warning light is used as an operation indicator light for the heater plugs and as a system fault warning light.
– Continuously lit during **+ after ignition feed**: indicates preheating of the plugs.
– Flashing after preheating and an automatic **3-second** stop, indicates a **Level 1** fault (indicates a reduced level of operation and a limited safety level. The user must carry out repairs as soon as possible).

Engine coolant temperature warning light (level 2)
This indicator light is used both as an in-operation indicator light and as a system fault warning light. It illuminates for **3 seconds** when the power comes on (automatic test procedure).
Continuously lit during **+ after ignition feed**: indicates engine overheating or a **level 2** fault.

OBD warning light
This warning light is used to alert the driver of any injection faults causing excessive pollution, or if the **OBD** system is deactivated.
The injection computer requests the illumination of the **OBD** warning light for a present fault only after three successive driving cycles.
The **3 second** visual inspection when the ignition is switched on (automatic test procedure managed by the instrument panel) is carried out by the injection computer.

Faults that activate the OBD warning light

Tool fault	Diagnostic tool name	Specification
DF016	EGR control circuit	**CO - CO. 0** **CC.1 - 1.DEF**
DF026	Cylinder 1 injector circuit control	**CO - CC**
DF027	Cylinder 2 injector circuit control	**CO - CC**
DF028	Cylinder 3 injector circuit control	**CO - CC**
DF029	Cylinder 4 injector circuit control	**CO - CC**
DF038	Computer	**3.DEF**
DF107	Computer memory	**2.DEF**
DF114	EGR solenoid valve circuit	**4.DEF**
DF209	EGR valve position sensor circuit	**CC.1-CO.0**

Water present in fuel warning light (depending on the instrument panel)
This warning light is used to warn the driver about the presence of water in the fuel filter, which leads to engine damage. It illuminates for **3 seconds** when the power comes on (automatic test procedure). When the vehicle is not fitted with this warning light or if it is not configured, this function is provided by the **level 1** warning light.

COMPUTER REPLACEMENT, PROGRAMMING AND REPROGRAMMING OPERATIONS

The system can be programmed via the diagnostic socket using the **diagnostic tool** (see **Technical Note 3585A Computer programming and reprogramming procedure** and **Technical Note 9869A Computer programming and reprogramming procedure** and follow the instructions given by the **diagnostic tool**).

IMPORTANT
– Switch on the diagnostic tool (mains or cigarette lighter supply).
– Connect a battery charger.
– Switch off all electrical consumers (lights, interior lights, air conditioning, radio/CD, etc.).
– Wait for the engine to cool (engine coolant temperature below 60˚C and air temperature below 50˚C).

IMPORTANT
It is not possible to try an injection computer coming from the Parts Department because it will no longer be possible to use it on another vehicle.

Before removing a computer in After-Sales, **always save the computer data with the diagnostic tool by running** command SC003 Save computer data. This command saves the following information:
– **C2I parameters (individual injector correction) and engine parameters**,
– **measuring system data**,
– **injection system reset data**.

Any time the computer has been programmed:
– Switch off the ignition.
– Switch on the ignition and use the diagnostic tool to carry out the following steps:
– Use command **SC001 Write saved data** to restore the **C2I** and the engine adaptive programming.
– Run command **VP010 Write VIN**.
– Run command **AC028 Static test**.
– Run command **AC154 Low speed fan assembly** to test the operation of the 1st speed fan assembly.
– Run command **AC153 High speed fan assembly** to test the operation of the 2nd speed fan assembly.
– Run command **AC250 Heating resistor 1 relay** to test the operation of passenger compartment heating resistor 1.
– Run command **AC251 Heating resistor 2 relay** to test the operation of passenger compartment heating resistor 2.
– Run command **AC100 Stop electrical consumer inhibition**.
– Use command **AC212 New pump chamber filling**.
– Run the starter motor without releasing the key until the engine starts (the reprime time of the pump until the engine starts can be up to **20 seconds**).
– After the engine has started, refer to **ET637 New pump chamber filling** and check that it is **Done**. If not, repeat the starting procedure.
– **Stop the engine, switch off the ignition (to initialise the computer), and wait 30 seconds.**
– After injection system programming, stored faults may appear in other computers.
– If **DF1083 Water in diesel fuel warning light circuit** appears in the injection computer: on a **vehicle fitted with a water in diesel fuel warning light**, perform the fault finding operations described in **DF1083** then run command **AC028 Static test** again; on **other vehicles, do not deal with the fault**.
– Clear the computer memory **RZ001 Fault memory**.

IMPORTANT
AFTER A (RE)PROGRAMMING OPERATION, DO NOT DISCONNECT THE BATTERY FOR AT LEAST 30 MINUTES (to carry out other work on the vehicle).

Note:
If commands **SC003 Save computer data** and **SC001 Write saved data** do not work or were forgotten: after programming the computer, write the **C2I** for each injector manually by reading the **C2I** on each injector (see **Replacement of injectors**).

REPLACING THE INJECTORS

Note:
C2I (individual injector correction) is a calibration carried out in the factory on **each injector** to **adjust the flow** of each injector precisely.
The correction values are written on a **label** affixed to each injector, then entered in the injection computer, which can then actuate each injector by taking account of their **manufacturing variation**.

The system can be set up via the diagnostic socket using the diagnostic tool.

The **C2I** parameters must be replaced after replacing an injector/injectors.

To do this, reprogram **C2I** into the injection computer using the following commands:
- VP001 Cylinder 1 injector for the cylinder 1 injector **(cylinder on the flywheel end)**,
- VP002 Cylinder 2 injector for the cylinder 2 injector,
- VP003 Cylinder 3 injector for the cylinder 3 injector,
- VP004 Cylinder 4 injector for the cylinder 4 injector.

It is also possible to enter the four **C2I** using command **SC002 Enter injector codes**.

Only after simultaneously replacing at least three injectors, **reset** the injector programming adaptives, using command **RZ004 Pressure regulation programming adaptives**.

HIGH PRESSURE PUMP REPLACEMENT

IMPORTANT
When reprogramming the computer, carry out the following procedure only after command AC028 Static test has been run (see Computer reprogramming operation).

PROCEDURE
– Switch on the ignition and use the **diagnostic tool** to re-establish dialogue with the injection computer.
– Use command **AC212 New pump chamber filling**.
– Run the starter (**Important: the repriming time until the engine starts can be up to 20 seconds**).
– After the engine has started, refer to **ET637 Fill new pump chamber** and check that it is **Done**; if not, repeat the starting procedure.

REPLACING THE EGR VALVE

If the **EGR valve** is replaced, program the new valve's offset position.
Switch on the ignition and use the diagnostic tool to perform the following step:
– run command **RZ002 EGR adaptives** to clear the old offset using the EGR programming clearing procedure.

IMPORTANT
Do not use this command if the valve is not new.

SETTINGS

VP001: Cylinder 1 injector
VP002: Cylinder 2 injector
VP003: Cylinder 3 injector
VP004: Cylinder 4 injector
These commands enable you to manually write the calibration code marked on the injector.
Use these commands after replacing the injector or replacing or (re)programming the computer, when command **SC001 Write saved data** does not work.

VP010: Write VIN.
This command enables the vehicle VIN to be entered into the computer.
Use this command each time the computer is replaced or (re)programmed.

VP013: Lock injector control.
This command disables electrical actuation of the injectors, for carrying out the compression test.

SPECIAL COMMANDS

SC001: Write saved data.
Use this command after replacing or (re)programming the computer (if the data were saved using command **SC003 Save computer data**).

SC002: Enter injector codes.
This command enables you to manually write the calibration code marked on the injectors.
Use this command after replacing the injectors.

SC003: Save computer data.
This command saves the computer operating data, **C2I** (individual injector correction) parameters and engine programming adapters.
Use this command before replacing or (re)programming a computer.

Tool fault	Associated DTC	Diagnostic tool name
DF001	**0115**	Coolant temperature sensor circuit
DF002	**0070**	Air temperature sensor circuit
DF003	**2226**	Atmospheric pressure sensor circuit
DF005	**0335**	Engine speed sensor circuit
DF007	**0190**	Rail pressure sensor circuit
DF008	**0225**	Pedal potentiometer circuit gang 1
DF009	**2120**	Pedal potentiometer circuit gang 2
DF010	**0409**	EGR position sensor circuit
DF014	**0500**	Vehicle speed information circuit
DF015	**0685**	Main relay control circuit
DF016	**0403**	EGR control circuit
DF017	**0382**	Preheating unit control circuit
DF018	**0480**	Low-speed fan unit control circuit
DF019	**0481**	High-speed fan unit control circuit
DF021	**0381**	Preheating warning light circuit
DF022	**0650**	OBD warning light circuit
DF024	**0231**	Low pressure actuator control circuit
DF025	**0380**	Preheater unit diagnostic connection
DF026	**0201**	Cylinder 1 injector circuit control
DF027	**0202**	Cylinder 2 injector circuit control
DF028	**0203**	Cylinder 3 injector circuit control
DF029	**0204**	Cylinder 4 injector circuit control
DF032	**1641**	Thermoplunger 1 relay control circuit
DF033	**1642**	Thermoplunger 2 relay control circuit
DF034	**1643**	Thermoplunger 3 relay control circuit
DF037	**0513**	Immobiliser
DF038	**0606**	Computer
DF039	**0110**	Inlet air temperature sensor circuit
DF047	**0560**	Computer feed voltage
DF049	**0530**	Refrigerant sensor circuit
DF050	**0571**	Brake switch circuit

Tool fault	Associated DTC	Diagnostic tool name
DF052	**0200**	Injector control circuit
DF053	**0089**	Rail pressure regulation function
DF056	**0100**	Air flow sensor circuit
DF057	**2264**	Water in diesel fuel detector circuit
DF059	**0263**	Misfiring on cylinder 1
DF060	**0266**	Misfiring on cylinder 2
DF061	**0269**	Misfiring on cylinder 3
DF062	**0272**	Misfiring on cylinder 4
DF089	**0235**	Inlet manifold pressure sensor circuit
DF098	**0180**	Fuel temperature sensor circuit
DF107	**062F**	Computer memory
DF112	**0340**	Cylinder reference sensor circuit
DF113	**0641**	Sensor supply voltage
DF114	**0400**	EGR solenoid valve circuit
DF121	**0325**	Accelerometer circuit
DF122	**0651**	Supply voltage pedal potentiometer gang 2
DF130	**0087**	Flow capacity function
DF159	**0635**	Power steering relay control circuit
DF162	**0655**	Overheating indicator light
DF195	**0016**	Camshaft/engine speed sensor consistency
DF209	**0487**	EGR valve position sensor circuit
DF218	**0604**	Microcontroller
DF221	**0830**	Clutch contact signal
DF236	**106F**	Serious injection fault warning light circuit

Tool fault	Associated DTC	Diagnostic tool name
DF242	**0654**	Engine speed signal output
DF261	**0045**	Turbocharger actuator circuit
DF427	**2263**	Turbocharger actuator control
DF433	**0656**	Fuel consumption signal (ADAC)
DF489	**0645**	Air conditioning compressor control
DF532	**2502**	Alternator charge signal
DF631	**0703**	Brake light switch signal
DF859	**0170**	Injector programming cycle not done
DF886	**2269**	Presence of water in the diesel fuel
DF1083	**3264**	Water in diesel fuel warning light circuit

DF001 PRESENT OR STORED	COOLANT TEMPERATURE SENSOR CIRCUIT CO.1: Open circuit or short circuit to +12 V CC.0: Short circuit to earth

NOTES	**Special notes:** If fault **DF001** is **present**, the preheating time is greater than **10 seconds** and the engine fan switches on at low speed (**Fan assembly 1**). If there is a fault on **Fan assembly 1**, then on vehicles fitted with air conditioning, **Fan assembly 2** switches on.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the coolant temperature sensor connector, component code **244**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Check the **insulation, continuity**, and **absence of interference resistance** of the following connections:
- **3C** between components **244** and **120**,
- **3JK** between components **244** and **120**,
- **M** (or **NH**) of component **244**,
- **42A** between components **244** and **247**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance** of the coolant temperature sensor between connections **3JK** and **3C** of component **244**.
11.5 kΩ < X < 13.5 kΩ at **-10˚C**,
2140 Ω < X < 2364 Ω at **25˚C,**
773 Ω < X < 851 Ω at **50˚C,**
275 Ω < X < 291 Ω at **80˚C,**
112 Ω < X < 118 Ω at **110˚C.**
If the value is not correct, replace the **coolant temperature sensor** (see **MR 388 Mechanical, 19A, Cooling, Coolant temperature sensor: Removal - Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF001

DF002 PRESENT OR STORED	AIR TEMPERATURE SENSOR CIRCUIT CO.1: Open circuit or short circuit to +12 V CC.0: Short circuit to earth 1.DEF: Inconsistency

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage.**
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2 or Symbol 2.**

Check the connection and condition of the air flow sensor connector, component code **799**.
Check the condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Check for **+ 12 V after ignition feed** on connection **3FB** (or **3FBA**) of the air flow sensor connector.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the **earth** on connection **NH** of the air flow sensor.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF002 CONTINUED	

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3B** between components **120** and **799**,
- **3FB** (or **3FBA**) of component **799**,
- **NH** of component **799**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance** of the air flow sensor, which should be between:
41255 Ω < X < 47492 Ω at **-40˚C,**
14260 Ω < X < 16022 Ω at **-20˚C,**
5497 Ω < X < 6050 Ω at **0˚C,**
2353 Ω < X < 2544 Ω at **20˚C,**
1114 Ω < X < 1186 Ω at **40˚C,**
569 Ω < X < 597 Ω at **60˚C,**
310 Ω < X < 322 Ω at **80˚C,**
180 Ω < X < 185 Ω à **100˚C.**
If the value is not correct, replace the **air flow sensor** (see **MR 388 Mechanical, 12A, Fuel mixture, Air flowmeter: Removal - Refitting**).

If the fault is still present, replace the air flowmeter (see **MR 388 Mechanical, 12A, Fuel mixture, Air flowmeter: Removal - Refitting**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF003 PRESENT OR STORED	ATMOSPHERIC PRESSURE SENSOR CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit on + 12 V

NOTES	**Special notes:** The atmospheric pressure sensor is incorporated into the injection computer.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Look for any damage to the wiring and check the condition and connection of the injection computer connectors, component code **120**. Check the connection and condition of the injection locking relay connector. If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Move the wiring between the injection computer and the battery, component code **107**, to see if a change of status occurs (Present → Stored). Look for possible damage to the wiring and check the connection and condition of the battery and its connections. If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Measure the battery **voltage** when the ignition is switched on. If the battery voltage is less than **11 V**, recharge the battery (see **Technical Note 6014A (Renault) or Technical Note 9859A (Dacia), Charging circuit check**).
Check the connection and condition of the battery terminals.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF003

DF005 PRESENT OR STORED	ENGINE SPEED SENSOR CIRCUIT 1.DEF: Inconsistency 2.DEF: Inconsistency 3.DEF: Too many additional teeth 4.DEF: Teeth missing 5.DEF: Additional teeth 6.DEF: Too many teeth missing

NOTES	**Special notes:** If fault **DF005, 1.DEF, 2.DEF, 3.DEF,** or **6.DEF** is **present**: the engine stops and the **level 2 warning light** illuminates. If fault **DF005, 4.DEF** or **5.DEF** is **present**: the engine performance is reduced to **75%** and no warning lights illuminate. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**
	Fault finding procedure application conditions for stored faults: The fault is **present** when the starter motor is operating or the engine is running at idle speed.

Check the connection and condition of the engine speed sensor connector, component code **149**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check that the speed sensor is correctly fitted to the engine.

Check the **insulation, continuity**, and **absence of interference resistance** of the following connections:
- **3BL** between components **120** and **149**,
- **3BG** between components **120** and **149**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure **the resistance** of the engine speed sensor between connections **3BG** and **3BL** of component **149**.
If the resistance of the engine speed sensor is not between 510 Ω < X < 850 Ω at 20˚C, replace the sensor (see **MR 388, Mechanical, 13B Diesel injection, Crankshaft position sensor: Removal – Refitting**).

Check that the flywheel ring gear is not defective (missing teeth).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF007 PRESENT OR STORED	RAIL PRESSURE SENSOR CIRCUIT CC.0: Short circuit to earth CO.1: Open circuit or short circuit to +12 V 1.DEF: Inconsistency 2.DEF: Below minimum threshold 3.DEF: Above maximum threshold 4.DEF: Value outside permitted tolerance

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage.**
	Fault finding procedure application conditions for stored faults: The fault is declared **present** after the engine starts.
	Special notes: If fault **DF007** is **present**: the engine stops and cannot be restarted. The **Level 2** warning light illuminates. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the rail pressure sensor connector, component code **1032**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+5 V** on connection **3LX** of the rail pressure sensor, component code **1032**.
Check for **earth** on connection **3LZ** of the rail pressure sensor, component code **1032**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3LX** between components **120** and **1032**,
- **3LY** between components **120** and **1032**,
- **3LZ** between components **120** and **1032**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, there is a fault of the rail pressure sensor, replace the rail (see **MR 388 Mechanical, 13B, Diesel injection, Injector rail, Removal - Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF008 PRESENT OR STORED	PEDAL POTENTIOMETER GANG 1 CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit on + 12 V 1.DEF: Inconsistency between pedal gang 1 and gang 2 2.DEF: No signal 3.DEF: Jammed component

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage.**
	Special notes: If fault **DF008** is **present**: the engine speed is maintained above **1000 rpm (normal idling speed with brake pedal depressed)** and the **level 1 warning light** illuminates (except for **3.DEF**). If faults **DF008** and **DF009 Pedal potentiometer gang 2 circuit** are **present**: engine speed is fixed at **1300 rpm and the level 1 warning light illuminates**. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

1.DEF **3.DEF**	***NOTES***	None.

Disconnect the injection computer connector, component code **120**, and the pedal potentiometer connector, component code **921**.
Check the **insulation, continuity** and the **absence of interference resistance** of the following connections:
- **3LS** between components **120** and **921**,
- **3LW** between components **120** and **921**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, replace the **pedal potentiometer** (see **MR 388 Mechanical, 37A, Mechanical component controls, Accelerator pedal: Removal - Refitting**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF008

DF008 CONTINUED 1	

CO.0 **CC.1** **2.DEF**	***NOTES***	None.

Check the connection and condition of the pedal potentiometer connector, component number **921**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3LR** between components **120** and **921,**
- **3LS** between components **120** and **921**,
- **3LT** between components **120** and **921**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check for **+5 V** on connection **3LR** of the pedal potentiometer, component code **921**.
Check for **earth** on connection **3LT** of the pedal potentiometer, component code **921**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Disconnect the injection computer connector and the pedal potentiometer connector.
Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3LS** between components **120** and **921**,
- **3LW** between components **120** and **921**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF008 CONTINUED 2	

Measure **the resistance** between connections **3LT** and **3LR** of the pedal potentiometer, component code **921**. If the pedal potentiometer resistance is not between **720 Ω < X < 1680 Ω**, replace the **pedal potentiometer** (see **MR 388 Mechanical, 37A, Mechanical component controls, Accelerator pedal: Removal - Refitting**).
If the fault is still present, replace the **pedal potentiometer** (see **MR 388 Mechanical, 37A, Mechanical component controls, Accelerator pedal: Removal - Refitting**).
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF009 PRESENT OR STORED	PEDAL POTENTIOMETER GANG 2 CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit on + 12 V

NOTES	**Priority when dealing with a number of faults:** **– DF122 Pedal potentiometer supply voltage gang 2.**
	Special notes: If fault **DF009** is **present**: the engine speed is maintained above **1000 rpm**, **the engine performance is reduced to 75%**, and the **level 1 warning light** illuminates. If faults **DF009** and **DF008 Pedal potentiometer gang 1 circuit** are **present**: the engine speed is fixed at **1300 rpm** and the **level 1 warning light** illuminates. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

CO.0	***NOTES***	None.

Check the connection and condition of the pedal potentiometer connector, component code **921**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+5 V** on connection **3LU** of the pedal potentiometer, component code **921**.
Check for **earth** on connection **3LV** of the pedal potentiometer, component code **921**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Disconnect the computer connector and the pedal potentiometer connector, component code **921**.
Check the **insulation against earth** of connection **3LW** on the injection computer connector.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF009

DF009 CONTINUED 1	

Check **the continuity** of the following connection:
- **3LW** between components **120** and **921**.

If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure **the resistance** between connections **3LV** and **3LU** of the pedal potentiometer, component code **921**.
If the resistance is not between **1020 Ω < X < 2380 Ω**, replace the pedal potentiometer (see **MR 388 Mechanical, 37A, Mechanical component controls, Accelerator pedal: Removal - Refitting**).

If the fault is still present, contact the Techline.

CC.1	*NOTES*	None.

Check the connection and condition of the pedal potentiometer connector, component number **921**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3LU** between components **120** and **921**,
- **3LV** between components **120** and **921**,
- **3LW** between components **120** and **921**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF009 CONTINUED 2	

Disconnect the computer connector and the pedal potentiometer connector, component code **921**. Check the **insulation** between connections **3LU** and **3LW** of the injection computer connector. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Measure **the resistance** between connections **3LU** and **3LV** of the pedal potentiometer, component code **921**. If the resistance is not between **1020 Ω < X < 2380 Ω,** replace the **pedal potentiometer** (see **MR 388 Mechanical, 37A, Mechanical component controls, Accelerator pedal: Removal - Refitting**).
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF010 PRESENT OR STORED	EGR POSITION SENSOR CIRCUIT 1.DEF: At minimum stop 2.DEF: At maximum stop

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage.**
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

K9K 718, 740, 792, and 796 ENGINES (Euro 4):
Check the connection and condition of the **EGR valve** connector, component code **1460**. Check the connection and condition of **connector B** (brown 48-track) of the **computer**, component code **120**. If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check the **insulation and continuity** of the following connections: ● **3GC** between components **1460** and **120**, ● **3EL** between components **1460** and **120,** ● **3JM** between components **1460** and **120**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Check for **+ 5 V** on connection **3GC** of the EGR valve sensor, component code **1460**. Check for **earth** on connection **3JM** of the EGR valve sensor, component code **1460**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF010

DF010 CONTINUED 1	

Measure the resistance of the **EGR valve**, component code **1460**:
- with the engine stopped, the EGR valve will be closed (unless there is a fault),
- wait for the ambient temperature around the valve to stabilise (approximately **20˚C**),

measure the resistance between connections **3VP** and **3VQ** of component **1460**. The resistance must be between **0.5 Ω < R < 50 Ω** (while activating command **AC002 EGR solenoid valve**).
If the value is not correct, replace the **EGR valve** (see **MR 388 Mechanical, 14A, Emission control, Exhaust gas recirculation solenoid valve: Removal - Refitting**).
After replacing the EGR valve, use command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.

If the fault is still present, contact the Techline.

K9K 790 and 794 ENGINES (Euro 3):

Check the connection and condition of the **EGR valve** connector, component code **1460**.
Check the connection and condition of **connector B** (brown 48-track) of the **computer**, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation and continuity** of the following connections:
- **3GC** between components **1460** and **120**,
- **3EL** between components **1460** and **120,**
- **3JM** between components **1460** and **120**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check for **+ 5 V** on connection **3GC** of the EGR valve sensor, component code **1460**.
Check for **earth** on connection **3JM** of the EGR valve sensor, component code **1460**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF010 CONTINUED 2	

Check the resistance of the **EGR valve**, component code **1460**:
- with the engine stopped, the EGR valve will be closed (unless there is a fault),
- wait for the ambient temperature around the valve to stabilise (approximately **20˚C**),
- measure the resistance between connections **3FB (or 3FB2)** and **122B.** The resistance must be between **7.54 Ω < R < 8.5 Ω** (at **20˚C**),
- measure the resistance between connections **3GC** and **3JM**. The resistance must be between **2.4 KΩ < R < 5.6 KΩ** (at **20˚C**),
- measure the resistance between connections **3JM** and **3EL**. The resistance must be between **800 Ω < R < 3.6 KΩ** (at **20˚C**),

If the value is not correct, replace the **EGR valve** (see **MR 388 Mechanical, 14A, Emission control, Exhaust gas recirculation solenoid valve: Removal - Refitting**). After replacing the EGR valve, use command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF014 PRESENT OR STORED	VEHICLE SPEED SIGNAL CIRCUIT 1.DEF: Inconsistency 2.DEF: Signal Absent 3.DEF: Below the minimum threshold 4.DEF: The CAN test has detected at least one fault 5.DEF: Dialogue disrupted

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the speed sensor connector, component code **250**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Connect the bornier in place of the computer and check the **insulation, continuity,** and **absence of interference resistance** on connection **47F** of the injection computer, component code **120**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, replace the speed sensor.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF014

DF015 PRESENT OR STORED	MAIN RELAY CONTROL CIRCUIT 1.DEF: Permanent low signal 2.DEF: Permanent high signal

NOTES	**Fault finding procedure application conditions for stored faults:** Apply the fault finding procedure below if the fault is **present** or **stored**.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the supply fuse **F02** (**30 A**) of the main relay in the engine compartment on the engine fuse and relay box, component code **597** (see **MR 388 Mechanical, 81C, Fuses, Fuses: List and location of components**).

Check the connection and condition of the connector of the injection computer, component code **120**, and of the computer supply relay, component code **983** on the engine fuse and relay box.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3AA** between components **120** and **983**,
- **3FB (**or **3FB2)** between components **120** and **983**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Replace the relay if the fault is still present.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF015

DF016 PRESENT OR STORED	EGR VALVE CONTROL CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V CO: Open circuit CO.1: Open circuit or short circuit to +12V CC.0: Short circuit to earth 1.DEF: Detection of overheating

NOTES	**Fault finding procedure application conditions for stored faults:** The fault appears when the engine is running at idle speed.
	Special notes: If fault **DF016** is **present**, unstable engine speed and even stalling. Starting difficult or even impossible when cold.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

K9K 718, 740, 792, and 796 ENGINES (Euro 4):

Check the connection and condition of the **exhaust gas recirculation valve** connector, component code **1460**.
Check the connection and condition of the **injection computer**, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation and continuity** of the following connections:
- **3VP** between components **1460** and 1**20,**
- **3VQ** between components **1460** and **120**.

If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check for the supply **13 V < X < 14 V (with the engine running)**, **11.5 V < X < 12.5 V (with the ignition on and the engine stopped)** on connection **3VP** of component **1460**.
Check for **earth** on connection **3VQ** of component **1460**.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF016 CONTINUED 1	

Measure the resistance of the **EGR valve**, component code **1460**:
- with the engine stopped, the EGR valve will be closed (unless there is a fault),
- wait for the ambient temperature around the valve to stabilise (approximately **20˚C**),

measure the resistance between connections **3VP** and **3VQ** of component **1460**. The resistance must be between **0.5 Ω < R < 50 Ω** (while activating command **AC002 EGR solenoid valve**).
If the value is not correct, replace **the EGR valve** (see **MR 388, Mechanical, 14A, Emission control, Exhaust gas recirculation solenoid valve: Removal - Refitting**).
After replacing the EGR valve, use command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.

If the fault is still present, contact the Techline.

K9K 790 and 794 ENGINES (Euro 3):

Check the connection and condition of the **exhaust gas recirculation solenoid valve** connector, component code **1460**.
Check the connection and condition of the **injection computer**, component code **1260**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation and continuity** of the following connections:
- **3FB (or 3FB2)** between components **1460** and **120**,
- **122B** between components **1460** and **120.**

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check for the supply: **13 V < X < 14 V (with the engine running), 11.5 V < X < 12.5 V (with the ignition on and the engine stopped)** on connection **3FB (or 3FB2)** of component **1460**.
Check for earth on connection **122B** of component **1460**.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF016 CONTINUED 2	

Measure the resistance of the **EGR valve**, component code **1460**:
– with the engine stopped, the EGR valve will be closed (unless there is a fault),
– wait for the ambient temperature around the valve to stabilise (approximately **20˚C**),
– measure the resistance between connections **3FB (or 3FB2)** and **122B** of component **1460**. The resistance must be between **7.5 Ω < R < 8.5 Ω** (at **20˚C**),
– measure the resistance between connections **3GC** and **3JM** of component **1460**. The resistance must be between **2.4 KΩ < R < 5.6 KΩ** (at **20˚C**),
– measure the resistance between connections **3JM** and **3EL** of component **1460**. The resistance must be between **800 Ω < R < 3.6 KΩ** (at **20˚C**),
if the value is not correct, replace the **EGR valve** (see **MR 388, Mechanical, 14A, Emission control, Exhaust gas recirculation solenoid valve: Removal - Refitting**).
After replacing the EGR valve, use command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF017 PRESENT	PREHEATING UNIT CONTROL CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Special notes:** If fault **DF017** is **present**: starting is difficult (even impossible when cold). If **CO.0** is present: the heater plugs are permanently switched on, with a risk of engine damage or even failure.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the preheating unit connector, component code **257**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3FY** between components **120** and **257**,
- **3FF** between components **120** and **257**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF017P

DF018 PRESENT OR STORED	LOW SPEED FAN ASSEMBLY CONTROL CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** after attempting to start or with the engine running or when command **AC154 Low speed fan unit relay** is running.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

CC.1	***NOTES***	None.

Check the **+ 12 V** after relay supply on the support of the low speed fan assembly - percolation relay, component code **700**, on connection **3FB** (only for **K9K 792, 794, 796** engines) or **3FB2** (only for **K9K 790** engines) or **BP7** (only for **K9K 718, 740** engines). If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Check the condition of the connections and the correct operation of relay **700**. If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check the **continuity** and **the absence of interference resistance** on the following connection: ● **3JN** between components **120** and **700**. If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF018

DF018 CONTINUED	

CO.0	***NOTES***	None.

Check the **continuity** and **insulation against earth** of the following connection:
3FB (only for **K9K 792, 794, 796** engines) or **3FB2** (only for **K9K 790** engines) or
BP7 (only for **K9K 718, 740** engines) between components **983** and **700**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF019 PRESENT OR STORED	HIGH SPEED FAN ASSEMBLY CONTROL CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** after attempting to start or with the engine running or when command **AC153 High speed fan assembly relay** is running.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

CC.1	***NOTES***	None.

Check the **+ 12 V** after relay supply on the support of the fan assembly relay **336** on connection 3FB (only for **K9K 792, 794, 796** engines) or **3FB2** (only for **K9K 790** engines) or **BP7** (only for **K9K 718, 740** engines). If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Check the condition of the connections and the correct operation of relay **336**. Replace it if necessary.
Check for **continuity and the absence of interference resistance** on the following connection: ● **3JP** between components **120** and **336**. If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF019 CONTINUED	

CO.0	*NOTES*	None.

Check **the continuity and insulation from earth** of the following connection:

- **3FB** (only for **K9K 792, 794, 796** engines) or **3FB2** (only for **K9K 790** engines) or **BP7** (only for **K9K 718, 740** engines) between components **983** and **336**.

If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF021 PRESENT OR STORED	PREHEATING WARNING LIGHT CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2 or Symbol 2.**

Clear the fault and check that the warning light is working properly with command **AC060 Preheating warning light**.

Check the **connection** and **condition** of the preheating warning light sensor, component code **247**.
Check the **connection** and **condition** of the injection computer connector, component code **120**.
If the connector(s) are faulty and there is a repair procedure (see **Technical Note 9804A, Electrical wiring repair, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check **the insulation** and **continuity** of the following connection:
- **3NX** between components **247** and **120**.

If the connection is faulty and there is a repair procedure (see **Technical Note 9804A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, replace the instrument panel, component code **247** (see **MR 388, (Logan / Sandero) or MR 423 (Thalia 2 / Symbol 2) Mechanical, 83A, Instrument panel, Instrument panel: Removal - Refitting**).

If the fault persists, contact your Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF021

DF022 PRESENT OR STORED	OBD CIRCUIT WARNING LIGHT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2 or Symbol 2.**

Clear the fault and check that the warning light is working properly with command **AC155 MIL warning light**.

Check the **connection** and **condition** of the OBD warning light sensor connector, component code **247**.
Check **the connection** and **condition** of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check **the insulation** and **continuity** of the following connection:
- **3FH** or **137C** between components **247** and **120**.

If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, replace the instrument panel, component code **247** (see **MR 388, (Logan / Sandero) or MR 423 (Thalia 2 / Symbol 2) Mechanical, 83A, Instrument panel, Instrument panel: Removal - Refitting**).

If the fault persists, contact your Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF022

DF024 PRESENT OR STORED	LOW-PRESSURE ACTUATOR CONTROL CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Special notes:** If fault **DF024** is **present** with a **CO.0** or a **CC.1**: the fuel flow actuator fully opens, the engine rattles and stops immediately to prevent racing, and the **level 2 warning light** illuminates.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the flow actuator connector, component code **1105**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+12 V after ignition feed** on connection **3FB (**or **3FB2)** on the flow actuator connector, component code **1105**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the connection and condition of the injection computer connector, component code **120**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Measure the **resistance** between the connections **3FB (**or **3FB2)** and **3HI** of the flow actuator, component code **1105**.
If the resistance is not between: **4.8 Ω < X < 5.8 Ω** at **20˚ C**, replace the flow actuator (see **MR 388 Mechanical, 13B, Diesel injection, Flow actuator: Removal – Refitting**).

Check the **insulation**, **continuity**, and the **absence of interference resistance** on the following connection:
- **3HI** between components **120** and **1105**.

If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF024

DF025 PRESENT OR STORED	PRE-POSTHEATING UNIT DIAGNOSTIC LINE CO: Open circuit

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check fuse **F1 (70 A)** of the preheating unit power supply, component code **257** in the engine compartment (see **MR 388 Mechanical, 81C, Fuses, Fuses: List and location of components**).
Check the connection and condition of the heater plug connectors, component codes **680**, **681**, **682**, and **683**. If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Measure the **resistance** of each heater plug. The resistance must be **less than 2 Ω**. Replace the faulty plug(s) (see **MR 388 Mechanical, 13C, Preheating, Heater plugs, Removal - Refitting**).
Check the connection and condition of the preheating unit connector, component code **257**. If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check the connection and condition of the injection computer connector, component code **120**. If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check the **insulation, continuity** and the **absence of interference resistance** on the following connections: ● **3FY** between components **120** and **257**, ● **3FF** between components **120** and **257**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF026 PRESENT OR STORED	CYLINDER 1 INJECTOR CIRCUIT CONTROL CO: Open circuit CC: Short circuit 1.DEF: At minimum stop 2.DEF: At maximum stop

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** with the engine idling.
	Special notes: When this fault appears, the idling speed is locked at **1000 rpm**, there is engine noise, unsteady engine speed, the engine performance is reduced to **75%**, and the **level 1 warning light** illuminates until the ignition is next switched off.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

CO **CC**	***NOTES***	None.

Switch off the ignition and wait **15 seconds**.
Check the connection and condition of the injector 1 connector, component code **193**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Run command **AC005 Cylinder 1 injector**.
If injector 1 cannot be heard operating five times in a cycle, connect the wire of the cylinder 2 injector to the cylinder 1 injector and use command **AC006 Cylinder 2 injector**.
Does this injector actuation cycle work?

Note:
If the wires cannot be swapped, continue the procedure by replying **YES** to the previous question.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF026 CONTINUED	

YES	Injector 1 is not faulty; fault on injector 1 control circuit.
	Check the **continuity, insulation**, and **absence of interference resistance** of the following connections: ● **3L** between components **120** and **193**, ● **3KW** between components **120** and **193**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
	If the fault is still present, contact the Techline.

NO	Injector 1 is faulty, replace the cylinder 1 injector (see **MR 388 Mechanical, 13B, Diesel Injection, Diesel injector: Removal – Refitting**).

1.DEF **2.DEF**	***NOTES***	None.

Check the conformity of the injectors fitted to the vehicle in relation to the engine number and type (low, high or very high pressure injector). Check that the **C2I** is correctly entered on the computer. Check the accelerometer shielding on connection **TB1** of the injection computer connector. Check that the accelerometer is secured on the engine. **After retightening** the accelerometer, **it is essential to clear** the pressure regulation adaptives using command **RZ004 Pressure regulation adaptives**. Disconnect and reconnect the accelerometer sensor to accomplish fast programming
If the fault is still present, replace the cylinder 1 injector, component code **193** (see **MR 388 Mechanical, 13B, Diesel injection, Diesel injector: Removal – Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF027 PRESENT OR STORED	CYLINDER 2 INJECTOR CIRCUIT CONTROL CO: Open circuit CC: Short circuit 1.DEF: At minimum stop 2.DEF: At maximum stop

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** with the engine idling.
	Special notes: When this fault appears, the idling speed is locked at **1000 rpm**, there is engine noise, unsteady engine speed, the engine performance is reduced to **75%**, and the **level 1 warning light** illuminates until the ignition is next switched off.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

CO **CC**	***NOTES***	None.

Switch off the ignition and wait **15 seconds**.
Check the connection and condition of the injector 2 connector, component code **194**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Run command **AC006 Cylinder 2 injector**.
If injector 2 cannot be heard operating five times in a cycle, connect the wire of the cylinder 3 injector to the cylinder 2 injector and use command **AC007 Cylinder 3 injector**.
Does this injector actuation cycle work?

Note:
If the wires cannot be swapped, continue the procedure by replying **YES** to the previous question.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF027 CONTINUED	

YES	Injector 2 is not faulty. The fault is in the injector 2 control circuit.
	Check the **continuity, insulation**, and **absence of interference resistance** of the following connections: ● **3LA** between components **120** and **194**, ● **3KX** between components **120** and **194**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
	If the fault is still present, contact the Techline.

NO	Injector 2 is faulty, replace the cylinder 2 injector (see **MR 388 Mechanical, 13B, Diesel injection, Diesel injector: Removal – Refitting**).

1.DEF **2.DEF**	***NOTES***	None.

Check the conformity of the injectors fitted to the vehicle in relation to the engine number and type (low, high or very high pressure injector). Check that the **C2I** is correctly entered on the computer. Check the accelerometer shielding on connection **TB1** of the injection computer connector. Check that the accelerometer is secured on the engine. **After retightening** the accelerometer, **it is essential to clear** the pressure regulation adaptives using command **RZ004 Pressure regulation adaptives**. Disconnect and reconnect the accelerometer sensor to accomplish fast programming
If the fault is still present, replace the cylinder 2 injector, component code **194** (see **MR 388 Mechanical, 13B, Diesel injection, Diesel injector: Removal – Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF028 PRESENT OR STORED	CYLINDER 3 INJECTOR CIRCUIT CONTROL CO: Open circuit CC: Short circuit 1.DEF: At minimum stop 2.DEF: At maximum stop

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** with the engine idling.
	Special notes: When this fault appears, the idling speed is locked at **1000 rpm**, there is engine noise, unsteady engine speed, the engine performance is reduced to **75%**, and the **level 1 warning light** illuminates until the ignition is next switched off.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

CO **CC**	***NOTES***	None.

Switch off the ignition and wait **15 seconds**.
Check the connection and condition of the injector 3 connector, component code **195**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Run command **AC007 Cylinder 3 injector**.
If injector 3 cannot be heard operating five times in a cycle, connect the wire of the cylinder 4 injector to the cylinder 3 injector and use command **AC008 Cylinder 4 injector**.
Does this injector actuation cycle work?

Note:
If the wires cannot be swapped, continue the procedure by replying **YES** to the previous question.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF028 CONTINUED	

YES	Injector 3 is not faulty. The fault is in the injector 3 control circuit.
	Check the **continuity, insulation**, and **absence of interference resistance** of the following connections: ● **3LB** between components **120** and **195**, ● **3KY** between components **120** and **195**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
	If the fault is still present, contact the Techline.

NO	Injector 3 is faulty, replace the cylinder 3 injector (see **MR 388 Mechanical, 13B, Diesel Injection, Diesel injector: Removal – Refitting**).

1.DEF **2.DEF**	***NOTES***	None.

Check the conformity of the injectors fitted to the vehicle in relation to the vehicle type and engine number (low, high or very high pressure injector).
Check that the **C2I** is correctly entered on the computer.
Check the accelerometer shielding on connection **TB1** of the injection computer connector, component code **120**.
Check that the accelerometer is secured on the engine.
After retightening the accelerometer, **it is essential to clear** the pressure regulation adaptives using command **RZ004 Pressure regulation adaptives**.
Disconnect and reconnect the accelerometer sensor to accomplish fast programming

If the fault is still present, replace the cylinder 3 injector, component code **195** (see **MR 388 Mechanical, 13B, Diesel Injection, Diesel injector: Removal – Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF029 PRESENT OR STORED	CYLINDER 4 INJECTOR CIRCUIT CONTROL CO: Open circuit CC: Short circuit 1.DEF: At minimum stop 2.DEF: At maximum stop

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** with the engine idling.
	Special notes: When this fault appears, the idling speed is locked at **1000 rpm**, there is engine noise, unsteady engine speed, the engine performance is reduced to **75%**, and the **level 1 warning light** illuminates until the ignition is next switched off.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

CO **CC**	***NOTES***	None.

Switch off the ignition and wait **15 seconds**.
Check the connection and condition of the injector 4 connector, component code **196**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Run command **AC008 Cylinder 4 injector**.
If injector 4 cannot be heard operating five times in a cycle, connect the wire of the cylinder 3 injector to the cylinder 4 injector and use command **AC007 Cylinder 3 injector**.
Does this injector actuation cycle work?

Note:
If the wires cannot be swapped, continue the procedure by replying **YES** to the previous question.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF029 CONTINUED	

YES	Injector 4 is not faulty. The fault is in the injector 4 control circuit.
	Check the **continuity, insulation**, and **absence of interference resistance** of the following connections: ● **3LC** between components **120** and **196**, ● **3KZ** between components **120** and **196**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
	If the fault is still present, contact the Techline.

NO	Injector 4 is faulty, replace the cylinder 4 injector, component code **196** (see **MR 388 Mechanical, 13B, Diesel Injection, Diesel injector: Removal – Refitting**).

1.DEF **2.DEF**	***NOTES***	None.

Check the conformity of the injectors fitted to the vehicle in relation to the vehicle type and engine number (low, high or very high pressure injector). Check that the **C2I** is correctly entered on the computer. Check the accelerometer shielding on connection **TB1** of the injection computer connector. Check that the accelerometer is secured on the engine. **After retightening** the accelerometer, **it is essential to clear** the pressure regulation adaptives using command **RZ004 Pressure regulation adaptives**. Disconnect and reconnect the accelerometer sensor to accomplish fast programming
If the fault is still present, replace the cylinder 4 injector, component code **196** (see **MR 388 Mechanical, 13B, Diesel Injection, Diesel injector: Removal – Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF032 PRESENT OR STORED	THERMOPLUNGER 1 RELAY CONTROL CIRCUIT CC.1: Short circuit to +12 V CO.0: Open circuit or short circuit to earth

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the additional heater 1 relay connector, component code **1067**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connection:
- **3JA** between components **120** and **1067**.

With the ignition on, check for **+12 V** on connection **3FB (**or **3FB2)** of the additional heater 1 relay.
If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, check the relay and replace it if necessary.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF032

DF033 PRESENT OR STORED	THERMOPLUNGER 2 RELAY CONTROL CIRCUIT CC.1: Short circuit to +12 V CO.0: Open circuit or short circuit to earth

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the additional heater 2 relay connector, component code **1068**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connection:
- **3JAA** between components **120** and **1068.**

With the ignition on, check for **+12 V** on connection **3FB (**or **3FB2)** of the additional heater 2 relay.
If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, check the relay and replace it if necessary.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF033

DF034 PRESENT OR STORED	THERMOPLUNGER 3 RELAY CONTROL CIRCUIT CC.1: Short circuit to +12 V CO.0: Open circuit or short circuit to earth

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the additional heater 3 relay connector. Check the connection and condition of the injection computer connector, component code **120**. If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.
Check the **insulation, continuity** and the **absence of interference resistance** on the following connection: Injection computer, connector **C, track D1 Thermoplunger 3** If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, check the relay and replace it if necessary.
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF034

DF037 PRESENT OR STORED	ENGINE IMMOBILISER

NOTES	**Stored fault diagnostic application conditions:** The fault is **present** after the ignition is switched on.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the injection computer connector, component code **120**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Connect the bornier in place of the computer and check the **insulation** and **continuity** of the following connection:
- **H17** between components **120** and **645**.

If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, run fault finding on the engine immobiliser system (see **82D, Access - Security**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF037

DF038 PRESENT OR STORED	COMPUTER 1.DEF: Analogue - digital converter 2.DEF: Enter EEPROM memory 3.DEF: Read EEPROM memory 4.DEF: Enter injector codes 5.DEF: Memory self-test 6.DEF: Watchdog activation 7.DEF: Interference on the injector control line 8.DEF: Watchdog not refreshed

NOTES	**Special notes:** When this fault appears, either the engine speed is fixed at **1300 rpm** with the **level 1 warning light** illuminated, or the engine stops with the **level 2 warning light** illuminated.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

1.DEF - 2.DEF 3.DEF - 5.DEF 6.DEF - 8.DEF	***NOTES***	None.

Contact the Techline.

4.DEF 7.DEF	***NOTES***	None.

Check that the individual injector correction **(C2I)** matches the injectors; if not, re-enter the **C2I** (see **Configurations and programming**).

Check the connection and condition of the injection computer connector, component code **120**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF038

DF038 CONTINUED	

Check the **insulation, continuity**, and **absence of interference resistance** of the following connections:
- **3L** between components **120** and **193**,
- **3KW** between components **120** and **193**,
- **3LA** between components **120** and **194**,
- **3KX** between components **120** and **194**,
- **3LB** between components **120** and **195**,
- **3KY** between components **120** and **195**,
- **3LC** between components **120** and **196**,
- **3KZ** between components **120** and **196**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF039 PRESENT OR STORED	INLET AIR TEMPERATURE SENSOR CIRCUIT CO.1: Open circuit or short circuit to +12V CC.0: Short circuit to earth

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage.**
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the air temperature sensor connector, component code **272**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s); otherwise, replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3KQ** between components **120** and **272**,
- **3SH** between components **120** and **272**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure **the resistance** of the air temperature sensor between connections **3KQ** and **3SH**.
If the resistance of the air temperature sensor is not between:
8623 Ω < X < 10455 Ω at **-10˚ C**,
1936 Ω < X < 2176 Ω at **25˚C,**
763 Ω < X < 857 Ω at **50˚C,**
212 Ω < X < 406 Ω at **80˚C.**
Replace the **air temperature sensor** if the resistance is not correct.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF039

DF047 PRESENT OR STORED	COMPUTER SUPPLY VOLTAGE 1.DEF: Above the maximum threshold 2.DEF: Below the minimum threshold

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** with the engine running at over **1000 rpm**.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Move the wiring between the injection computer, component code **120** and the battery, component code **107** to see if a change of status occurs (Present ↔ Stored).
Look for possible damage to the wiring and check the connection and condition of the battery and its connections.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Measure the **battery voltage** when the ignition is switched on.
If the battery voltage is less than **11 V**, recharge the battery.

Check the connection and condition of the battery terminals.

Check the vehicle's charge circuit (see **Technical Note 6014A (Renault) or Technical Note 9859A (Dacia), Charging circuit check**).

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF047

DF047 CONTINUED	

Check the connection and condition of the injection computer, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **AP15** or **AP29** between components **120** and **1016**,
- **N** or **NH** between component **120** and **earth**,
- **3FB** or **3FB2** between components **120** and **983**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF049 PRESENT OR STORED	REFRIGERANT SENSOR CIRCUIT CO.1: Open circuit or short circuit to +12 V CC.0: Short circuit to earth

NOTES	**Fault finding procedure application conditions for stored faults:** Apply the fault finding procedure below if the fault is **present** or **stored**.
	Priority when dealing with a number of faults: **– DF113 Sensor supply voltage.**
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Display **PR037 Refrigerant pressure**, if the value is less than **2 bar**, top up the refrigerant (see **MR 388, Mechanical, 62A, Air conditioning, Refrigerant circuit: Draining - Filling)**.

Move the wiring between the injection computer, component code **120**, and the refrigerant pressure sensor, component code **1202**, to see if a change of status occurs (**present ↔ stored**).
Look for any damage to the wiring and check the condition and connection of the refrigerant pressure sensor and its connections.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the connection and condition of the injection computer connector, component code **120**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF049

DF049 CONTINUED	

Check for **+5 V** on connection **38Y** of the refrigerant pressure sensor connector, component code **1202**. Check for **earth** on connection **38U** of the refrigerant pressure sensor connector, component code **1202**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Check the **insulation, continuity** and the **absence of interference resistance** on the following connections: ● **38X** between components **120** and **1202**, ● **38Y** between components **120** and **1202**, ● **38U** between components **120** and **1202**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, replace the **refrigerant pressure sensor**, component code **1202**.
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF050 PRESENT OR STORED	BRAKE SWITCH CIRCUIT CO.0: Open circuit or short circuit to earth 1.DEF: No signal

NOTES	**Special notes:** The fault is declared **present** when decelerating, when the brake pedal is depressed. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**
	Fault finding procedure application conditions for stored faults: Apply the fault finding procedure below if the fault is present or stored.

Check the correct operation of the brake switch by displaying **ET039 Brake pedal.**

Check the connection and condition of the brake light switch connector, component code **160**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+ 12 V** on the brake light switch supply on connections **AP1 or AP10**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the **insulation, continuity**, and **absence of interference resistance** of the following connections:
- **65A** between components **120** and **160**,
- **AP1** or **AP10** between components **160** and **1016**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF050

DF052 PRESENT OR STORED	INJECTORS CONTROL CIRCUIT CC.1: Short circuit to +12 V CC.0: Short circuit to earth

NOTES	**Priority in the event of a number of faults:** If there is a combination of faults **DF052**, **– DF026 Cylinder 1 injector circuit control,** **– DF027 Cylinder 2 injector circuit control,** **– DF028 Cylinder 3 injector circuit control, and** **– DF029 Cylinder 4 injector circuit control.** The fault finding procedure remains the same, the **DF026 to DF027** serves to identify the faulty injector.
	Special notes: When the fault occurs, there is engine noise, unstable engine speed, reduced engine performance and the **level 2 warning light** comes on.
	Use the Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.

Switch off the ignition.
Check the condition and connection of the injector connectors, component codes **193, 194, 195, and 196**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Switch off the ignition.
Disconnect the injectors (or the injector identified by the **DF026, DF027, DF028,** and **DF029**) and switch on the ignition again.
Using the **diagnostic tool**, check for changes to **DF052**.
Is DF052 present or stored?

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF052

DF052 CONTINUED	

PRESENT	The injectors are not defective.
	Check the **insulation, continuity** and the **absence of interference resistance** on the following connections: ● **3L** between components **120** and **193**, ● **3KW** between components **120** and **193**, ● **3LA** between components **120** and **194**, ● **3KX** between components **120** and **194**, ● **3LB** between components **120** and **195**, ● **3KY** between components **120** and **195,** ● **3LC** between components **120** and **196**, ● **3KZ** between components **120** and **196**. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
	If the fault is still present, contact the Techline.

STORED	Injector(s) defective. Replace the injector identified by **DF026, DF027, DF028, DF029 if present** (see **MR 388 Mechanical, 13B, Diesel injection, Diesel injector: Removal – Refitting**). If none of the faults identifying the defective injector circuit are **present**: – Switch off the ignition. – Reconnect one of the four injectors. – Switch on the ignition again. If the fault reappears as **present**, replace the reconnected injector (see **MR 388 Mechanical, 13B, Diesel injection, Diesel injector: Removal – Refitting**). Carry out the same procedure for the remaining injectors.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF053 PRESENT OR STORED	RAIL PRESSURE REGULATION FUNCTION 1.DEF: At minimum stop 2.DEF: At maximum stop 3.DEF: Below the minimum threshold 4.DEF: Above the maximum threshold 5.DEF: High flow current < minimum 6.DEF: High flow current > maximum 7.DEF: Low flow current < minimum 8.DEF: Low flow current > maximum

NOTES	**Special notes:** If fault **DF053** is **present**: the engine may stop with the level 2 warning light illuminated and the message **Injection fault** displayed on the instrument panel.
	Priority in the event of a number of faults: **– DF098 Fuel temperature sensor circuit** **– DF007 Rail pressure sensor circuit.**
	Use the Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.
	Fault finding procedure application conditions for stored faults: The fault is considered **present** when the engine is running.

4.DEF **6.DEF** **8.DEF**	***NOTES***	None.

Check the connection and condition of the flow actuator connector, component code **1105**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF053

DF053 CONTINUED 1	

Check for **+12 V** (after relay) on connection **3FB (**or **3FB2)** of the fuel flow actuator connector, component code **1105**. If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Check the **insulation, continuity** and the **absence of interference resistance** on the following connection: ● **3HI** between components **120** and **1105**. If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Measure the **resistance** between connections **3FB (**or **3FB2)** and **3HI** of the flow actuator, component code **1105**. If the resistance of the flow actuator is not between: **4.8 Ω < X < 5.8 Ω** at **20˚ C**, replace the flow actuator.
Check the presence and conformity of the fuel in the tank. Run **test 13 Diesel fuel conformity check**. Run **test 1 Low pressure circuit check**.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF053 CONTINUED 2	

1.DEF **2.DEF** **3.DEF** **5.DEF** **7.DEF**	***NOTES***	None.

Check the presence and conformity of the fuel in the tank.
Run **test 13 Diesel fuel conformity check**.
Run **test 1 Low pressure circuit check**.
Run **test 6 High pressure system check**.
Run **test 8 Injector return flow**

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF056 PRESENT OR STORED	AIR FLOW SENSOR CIRCUIT 1.DEF: Permanent low level 2.DEF: Permanent high level 3.DEF: At maximum stop 4.DEF: At minimum stop

NOTES	**Priority in the event of a number of faults:** **– DF089 Inlet manifold pressure sensor circuit.**
	Special notes: If fault **DF056** is **present**: air flow regulation stops and the EGR valve is closed.
	Use the Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.

Check the condition of the air filter, and replace it if necessary (see **MR 388 Mechanical, 12A, Fuel mixture, Air filter**: **Removal - Refitting**).
Check that the inlet manifold is not obstructed (clogged).
Run **TEST 5 Inlet circuit check**.
Run **TEST 11 Air line at the turbocharger**.

Check the connection and condition of the air flowmeter connector, component code **799**.
Check the condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+ 12 V after ignition feed** on connection **3FB (**or **3FBA)** of the air flowmeter connector, component code **799**.
Check for **+5 V** on connection **3KJ** of the air flowmeter connector, component code **799**.
Check **the earth** on connection **NH** on the air flowmeter connector, component code **799**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF056

DF056 CONTINUED	

Check the **insulation, continuity**, and **absence of interference resistance** of the following connections:
- **3KJ** between components **120** and **799**,
- **3DV** between components **120** and **799**,
- **3DW** between components **120** and **799**,
- **3FB** between components **799** and **1047** (only for **K9K 718** engines),
- **3FBA** between components **799** and **597** (only for **K9K 792, 796** engines),
- **NH** between component **799** and **earth**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
Also check **the insulation** between these connections.

If the fault is still present, replace the air flowmeter (see **MR 388 Mechanical, 12A, Fuel mixture, Air flowmeter: Removal - Refitting**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF057 PRESENT OR STORED	WATER IN DIESEL FUEL DETECTOR CIRCUIT CO.1: Open circuit or short circuit to +12 V CC.0: Short circuit to earth 1.DEF: Above the maximum threshold

NOTES	**Special note:** If fault **DF057** is **present**, the **level 1 warning light is** illuminated. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check for water in the diesel filter. If water is present, bleed the diesel filter.
If there is a large quantity of water, run the first part of **Test 13: Diesel fuel conformity check** (Is the fuel cloudy or does it separate into 2 parts?)

Check the connection and condition of the water in diesel fuel sensor connector, component code **414**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for a voltage between **13 V** and **14 V (with the engine running)** and between **11.5 V** and **12.5 V (with the ignition on and the engine stopped)** on connection **3FB (**or **3FB2)** of the water in diesel fuel sensor connector.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the **insulation** and **continuity** of the following connections:
- **3WT** between components **120** and **414**,
- **M** between components **120** and **414**,
- **3FB (**or **3FB2)** between components **414** and **983**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, replace the **water in diesel fuel sensor**.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF057

DF059 PRESENT OR STORED	COMBUSTION MISFIRES ON CYLINDER 1

NOTES	**Special notes:** If fault **DF059** is **present**, the engine speed is maintained at **1000 rpm**, the engine performance is reduced to **75%**, and the **level 2 warning light** illuminates.
	Fault finding procedure application conditions for stored faults: The fault is **present** with the engine idling.
	Priority when dealing with a number of faults: **– DF026 Cylinder 1 injector circuit control (short circuit or open circuit).** **– DF053 Rail pressure regulation function (1.DEF, 2.DEF, 7.DEF).**

Check the presence and conformity of the fuel. Run **test 13: Diesel fuel conformity check**.
Run **test 3 Injector check.**
Check the engine compression.
Check the valve clearance and adjust it if necessary.
Check the inlet manifolds, as well as the EGR valve and clean them if necessary (see **Technical Note 3916A, Cleaning the EGR solenoid valve**).
If the fault is still present, replace the injector (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**).
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF059

DF060 PRESENT OR STORED	MISFIRING ON CYLINDER 2

NOTES	**Special notes:** If fault **DF060** is **present**, the engine speed is maintained at **1000 rpm**, the engine performance is reduced to **75%**, and the **level 2 warning light** illuminates.
	Fault finding procedure application conditions for stored faults: The fault is **present** with the engine idling.
	Priority when dealing with a number of faults: **– DF027 Cylinder 1 injector circuit control (short circuit or open circuit).** **– DF053 Rail pressure regulation function (1.DEF, 2.DEF, 7.DEF).**

Check the presence and conformity of the fuel. Run **test 13: Diesel fuel conformity check**.
Run **test 3 Injector check.**
Check the engine compression.
Check the valve clearance and adjust if necessary.
Check the inlet manifolds, as well as the EGR valve and clean them if necessary (see **Technical Note 3916A, Cleaning the EGR solenoid valve**).
If the fault is still present, replace the injector (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**).
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF060

DF061 PRESENT OR STORED	MISFIRING ON CYLINDER 3

NOTES	**Special notes:** If fault **DF061** is **present**, the engine speed is maintained at **1000 rpm**, the engine performance is reduced to **75%**, and the **level 2 warning light** illuminates.
	Fault finding procedure application conditions for stored faults: The fault is **present** with the engine idling.
	Priority when dealing with a number of faults: **– DF028 Cylinder 1 injector circuit control (short circuit or open circuit).** **– DF053 Rail pressure regulation function (1.DEF, 2.DEF, 7.DEF).**

Check the presence and conformity of the fuel. Run **test 13: Diesel fuel conformity check**.
Run **test 3 Injector check.**
Check the engine compression.
Check the valve clearance and adjust if necessary.
Check the inlet manifolds, as well as the EGR valve and clean them if necessary (see **Technical Note 3916A, Cleaning the EGR solenoid valve**).
If the fault is still present, replace the injector (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**).
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF061

DF062 PRESENT OR STORED	MISFIRING ON CYLINDER 4

NOTES	**Special notes:** If fault **DF062** is **present**, the engine speed is maintained at **1000 rpm**, the engine performance is reduced to **75%**, and the **level 2 warning light** illuminates.
	Fault finding procedure application conditions for stored faults: The fault is **present** with the engine idling.
	Priority when dealing with a number of faults: **– DF029 Cylinder 1 injector circuit control (short circuit or open circuit).** **– DF053 Rail pressure regulation function (1.DEF, 2.DEF, 7.DEF).**

Check the presence and conformity of the fuel. Run **test 13: Diesel fuel conformity check**.
Run **test 3 Injector check.**
Check the engine compression.
Check the valve clearance and adjust if necessary.
Check the inlet manifolds, as well as the EGR valve and clean them if necessary (see **Technical Note 3916A, Cleaning the EGR solenoid valve**).
If the fault is still present, replace the injector (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**).
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF062

DF089 PRESENT OR STORED	INLET MANIFOLD PRESSURE SENSOR CIRCUIT 1.DEF: Permanent low level 2.DEF: Permanent high level 3.DEF: Below the minimum threshold 4.DEF: Above the maximum threshold 5.DEF: Inconsistency 6.DEF: At maximum stop 7.DEF: At minimum stop

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage.**
	Special notes: If fault **DF089** is **present**, the engine speed is maintained at **1000 rpm, the engine performance is reduced to 75%**, and the **level 1 warning light** illuminates.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

1.DEF **2.DEF** **3.DEF** **4.DEF**	***NOTES***	None.

Check the connection and condition of the turbocharging pressure sensor connector, component code **1071**.
Check the condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+5 V** on connection **3LQ** of the turbocharging pressure sensor, component code **1071**.
Check for **earth** on connection **3LN** of the turbocharging pressure sensor connector, component code **1071**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF089

DF089 CONTINUED	

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3LQ** between components **120** and **1071,**
- **3LP** between components **120** and **1071,**
- **3LN** between components **120** and **1071.**

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

5.DEF **6.DEF** **5.DEF**	***NOTES***	None.

Visually check the **sealing of the exhaust and inlet manifolds**.
Remove the air inlet and **exhaust** ducts.
Check that the ducts are not blocked.
Repair if necessary.

With the engine stopped, check the consistency between the atmospheric pressure and the manifold pressure **(PR035 Atmospheric pressure = PR312 Manifold pressure)**.
With the engine stopped, the pressure should be approximately the same between the two sensors.
Replace the manifold pressure sensor if necessary.

Run **Test 12: Turbocharger**

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF098 PRESENT OR STORED	FUEL TEMPERATURE SENSOR CIRCUIT CO.1: Open circuit or short circuit to +12 V CC.0: Short circuit to earth

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the fuel temperature sensor connector, component code **1066**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity**, and **absence of interference resistance** of the following connections:
- **3FAB** between components **120** and **1066**,
- **3LD** between components **120** and **1066**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance** of the fuel temperature sensor between the following connections:
- **3FAB** between components **120** and **1066**,
- **3LD** between components **120** and **1066**.

If the resistance of the fuel temperature sensor is not approximately **2.2 kΩ** at **25°C**, replace the sensor (see **MR 388, Mechanical, 13B, Diesel injection, Fuel temperature sensor, Removal - Refitting**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF098

DF107 PRESENT OR STORED	COMPUTER MEMORY 1.DEF: Enter EEPROM memory 2.DEF: Read EEPROM memory

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is considered **present** when the engine is running.
	Special note: If fault **DF107** is **present**, the engine stops, restarting is impossible, and the **level 2 warning light** illuminates.

Enter the individual injector corrections **(C2I)** using the **diagnostic tool (command SC002 Enter injector codes)**.
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF107

DF112 PRESENT OR STORED	CYLINDER REFERENCE SENSOR CIRCUIT 1.DEF: No signal

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is **present** when the **starter motor** is operating or the engine is running at **idle speed**.
	Special note: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the cylinder reference sensor connector, component code **746**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+12 V after ignition feed** on connection **3FB (**or **3FB2)** of the cylinder reference sensor, component code **746**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3CQ** between components **120** and **746**,
- **3PL** between components **120** and **746**,
- **3FB (**or **3FB2)** between components **746** and **983**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the timing adjustment (see **MR 388: Mechanical systems, 11A, Top and front of engine, Timing belt: Removal - Refitting)**.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF112

DF113 PRESENT OR STORED	SENSOR SUPPLY VOLTAGE 1.DEF: At minimum stop 2.DEF: At maximum stop

NOTES	**Special notes:** If fault **DF113** is **present**: the engine stops immediately and restarting is impossible. The **Level 2** warning light illuminates.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the condition and connection of the connectors on all sensors with a **5 V** supply:
– Refrigerant pressure sensor, component code **1202**.
– Inlet manifold pressure and temperature sensor, component code **147** or temperature sensor only, component code **272** and turbocharger pressure sensor, component code **1071**.
– Rail pressure sensor, component code **1032**.
– Pedal sensor, gangs 1 and 2, component code **921**.
– EGR valve position sensor, component code **1460**.
– Injection air flow sensor, component code **799**.

If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the connection and condition of the injection computer connectors, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

To locate any internal fault in one of the sensors supplied with **+ 5 V** (short circuit), disconnect each of the sensors on the list above in turn, checking after each disconnection whether the fault changes status from **present** to **stored**.
If the defective sensor is located, check its connections and its conformity.
If necessary replace the sensor.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF113

DF113 CONTINUED	

Use the bornier to check the **insulation, continuity,** and **absence of interference resistance** on the following connections:

- 3LR between components 120 and 921,
- 3LU between components 120 and 921,
- 3GC between components 120 and 1460,
- 3JM between components 120 and 1460,
- 3LQ between components 120 and 1071,
- 3LX between components 120 and 1032,
- 38Y between components 120 and 1202,
- 3KJ between components 120 and 799,

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, apply the fault finding procedure for each sensor with a **5 V** supply.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF114 PRESENT OR STORED	EGR SOLENOID VALVE CIRCUIT 1.DEF: At minimum stop 2.DEF: At maximum stop 3.DEF: Inconsistency 4.DEF: Valve jammed 5.DEF: Valve clogged

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is considered **present** when the engine is running.
	Special notes: If fault **DF114** is **present**, unstable engine speed and even stalling. Starting difficult or even impossible when cold. Loss of performance and emission of fumes possible. The **level 2 warning light** comes on.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

K9K 718, 740, 792, and 796 ENGINES (Euro 4):

Check the connection and condition of the **EGR valve** connector, component code **1460**.
Check the connection and condition of **connector B** (brown 48-track) of the injection computer, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation and continuity** of the following connections:
- **3VP** between components **1460** and **120,**
- **3VQ** between components **1460** and **120**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF114

DF114 CONTINUED 1	

Check for **+5 V** on connection **3GC** of component **1460**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the resistance of the **EGR valve**:
– with the engine stopped, the **EGR valve** will be closed (unless there is a fault),
– wait for the ambient temperature around the valve to stabilise (approximately **20˚C**),
– measure the resistance between connections **3VP** and **3VQ** of component **1460**. The resistance must be between **0.5 Ω < R < 50 Ω** (while running command **AC002 EGR solenoid valve)**.
If the value is not correct, replace the **EGR valve** (see **MR 388 Mechanical, 14A, Emission control, Exhaust gas recirculation solenoid valve: Removal - Refitting**).
After replacing the EGR valve, use command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.

Also if a **3.DEF, 4.DEF or 5.DEF** fault is present:
- Remove the EGR valve.
- Check that there are no foreign bodies (scale, etc.) that could jam the valve.
- Remove the foreign matter and clean the EGR valve (see **Technical Note 3916A, Cleaning the EGR solenoid valve**).
- Refit the EGR valve.
- Run command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.
- Clear the faults from the **computer** memory. Carry out a road test followed by another check with the **diagnostic tool**.

If the fault is still present, contact the Techline.

K9K 790 and 794 ENGINES (Euro 3):

Check the connection and condition of the **EGR valve** connector, component code **1460**.
Check the connection and condition of **connector B** (brown 48-track) of the injection computer, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation and continuity** of the following connections:
● **3FB** (or **3FB2**) between components **1460** and **120**,
● **122B** between components **1460** and **120.**
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF114 CONTINUED 2	

Check for **+12 V** on connection **3GC** of component **1460**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the resistance of the **EGR valve**, component code **1460**:
- with the engine stopped, the EGR valve will be closed (unless there is a fault),
- wait for the ambient temperature around the valve to stabilise (approximately **20˚C**),
- measure the resistance between connections **3FB** (or **3FB2)** and **122B**. The resistance must be between **7.5 Ω < R < 8.5 Ω** (at **20˚C**),
- measure the resistance between connections **3GC** and **3JM**. The resistance must be between **2.4 kΩ < R < 5.6 kΩ** (at **20˚C**),
- measure the resistance between connections **3JM** and **3EL**. The resistance must be between **800 Ω < R < 3.6 kΩ** (at **20˚C**),

If the value is not correct, replace the **EGR valve**, component code **1460** (see **MR 388 Mechanical, 14A, Emission control, Exhaust gas recirculation solenoid valve, Removal - Refitting**).
After replacing the EGR valve, use command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.

Also if a **3.DEF, 4.DEF**, or **5.DEF** fault is present:
– Remove the EGR valve.
– Check that there are no foreign bodies (scale, etc.) that could jam the valve.
– Remove any foreign bodies and clean the EGR valve (see **Technical Note 3916A, Cleaning the EGR solenoid valve**).
– Refit the EGR valve.
– run command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.
– Clear the faults from the **computer** memory. Carry out a road test followed by another check with the **diagnostic tool**.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF121 PRESENT OR STORED	ACCELEROMETER CIRCUIT 1.DEF: No signal

NOTES	**Priorities when dealing with a number of faults:** **– DF001 Coolant temperature sensor circuit,** **– DF002 Air temperature sensor circuit,** **– DF003 Atmospheric pressure sensor circuit,** **– DF098 Fuel temperature sensor circuit,** A fault on one of these sensors could lead to incorrect fault finding on the accelerometer.
	Fault finding procedure application conditions for stored faults: The fault is considered **present** when the engine is running.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the conformity of the injectors fitted to the vehicle in relation to the type of vehicle and engine number (low-, high- or very high pressure injector).

Check the connection and condition of the accelerometer connector, component code **146**.
Check the connection and condition of the injection computer connector, component code **120** and the sensor shielding on connection **TB1**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3DQ** between components **120** and **146,**
- **3S** between components **120** and **146**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF121

DF121 CONTINUED	

Ensure that **C2I** is entered correctly in the injection computer. Check that the accelerometer is secured on the engine. Disconnect and reconnect the accelerometer sensor to accomplish fast programming.
Carry out a road test followed by another check with the **diagnostic tool**. If the fault is still present, replace the accelerometer (see **MR 388 Mechanical, 13B, Diesel injection, Accelerometer: Removal - Refitting**).

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF122 PRESENT OR STORED	PEDAL POTENTIOMETER GANG 2 SUPPLY VOLTAGE CO.1: Open circuit or short circuit to +12V CC.0: Short circuit to earth

NOTES	**Special notes:** If fault **DF122** is **present**: the engine stops immediately and restarting is impossible. The **Level 2** warning light illuminates.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the condition and connection of the pedal sensor, component code **921**.
Check the connection and condition of the injection computer connectors, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

To locate any internal fault in one of the sensors with a **5 V** supply (short circuit), disconnect each of the sensors on the list above in turn, checking after each disconnection whether the fault changes status from **present** to **stored**.
If the defective sensor is located, check its connections and its conformity.
If necessary replace the sensor.

Connect the bornier in place of the computer and check the insulation, continuity and the absence of interference resistance on the following connections:
- **3LW** between components **120** and **921**,
- **3LV** between components **120** and **921**,
- **3LU** between components **120** and **921**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, apply the fault finding procedure for each sensor with a **5 V** supply.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF122

DF130 PRESENT OR STORED	FLOW CAPACITY FUNCTION 1.DEF: High flow capacity < minimum 2.DEF: High flow capacity > maximum

NOTES	**Special notes:** If fault **DF130** is **present**, the engine may stop with the **level 2 warning light** illuminating.
	Fault finding procedure application conditions for stored faults: The fault is considered **present** when the engine is running.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the flow actuator connector (IMV), component code **1105**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity**, and **absence of interference resistance** on the following connection:
- **3HI** between components **120** and **1105**.

If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance** between connections **3HI** and **3FB (**or **3FB2)** of the flow actuator, component code **1105**.
If the resistance of the flow actuator is not between: **4.8** Ω **< X < 5.8** Ω at **20˚C**, replace the flow actuator (see **MR 388 Mechanical, 13B, Diesel injection, Flow actuator: Removal – Refitting**).

Check the presence and conformity of the fuel in the tank.
Run **test 13 Diesel fuel conformity check**.
Run **test 1 Low pressure circuit check**.

If the fault is still present, run **test 6 High pressure system check**.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF130

DF159 PRESENT OR STORED	POWER ASSISTED STEERING RELAY CONTROL CIRCUIT CO.0: open circuit or short-circuit to earth CC.1: Short circuit at + 12 V

NOTES	**Special notes:** This fault is active if the vehicle is fitted with electric power-assisted steering.

Check the connection and condition of the connectors of the **pump assembly relay mounting (power-assisted steering pump assembly)**, component code **409**, and of the **injection computer**, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s), otherwise replace the wiring.

Check the **insulation, continuity and the absence of interference resistance** on the following connection:
- **3FK** between components **409** and **120**.

If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace the wiring.

Check for **+ after ignition feed** between the following connections:
tracks 1 and **3** of the relay.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF159

DF162 PRESENT OR STORED	OVERHEATING INDICATOR LIGHT CO.0: open circuit or short-circuit to earth CC.1: Short circuit at + 12 V

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2 or Symbol 2.**

Clear the fault and check that the warning light is working properly with command **AC061 Overheating warning light**.
Check the **condition** and **connection** of the overheating warning light sensor connector, component code **247**. Check the **connection** and **condition** of the injection computer connector, component code **120**. If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check **the insulation** and **continuity** of the following connection: • **31A** between components **247** and **120** If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, replace the instrument panel, component code **247** (see **MR 388, (Logan / Sandero) or MR 423 (Thalia 2 / Symbol 2) Mechanical, 83A, Instrument panel, Instrument panel: Removal - Refitting**).
If the fault persists, contact your Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF162

DF195 PRESENT OR STORED	ENGINE SPEED/CAMSHAFT SENSOR CONSISTENCY

NOTES	
	Stored fault diagnostic application conditions: The fault becomes **present** after clearing the fault from the memory or after an attempt to start the engine or with the engine running.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connections of the engine speed sensor, component code **149** and the camshaft sensor, component code **746**.
Check the connections of the injection computer, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3PL** between components **120** and **746**,
- **3CQ** between components **120** and **746**,
- **3BL** between components **120** and **149**,
- **3BG** between components **120** and **149**,
- **3FB (**or **3FB2)** between components **746** and **983**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure **the resistance** of the engine speed sensor, component code **149** between connections **3BL** and **3BG**.
If the resistance of the engine speed sensor is not between **510 Ω < X < 850 Ω** at **20˚C**, replace the sensor (see **MR 388, Mechanical, 13B, Diesel injection, Crankshaft position sensor: Removal - Refitting**).

Measure **the resistance** of the camshaft sensor, component code **746** between connections **3PL** and **3CQ**.
If the resistance of the camshaft sensor is not between **9737.5 Ω < X < 10762.5 Ω**, replace the sensor (see **MR 388 Mechanical, 13B Diesel injection, Camshaft position sensor: Removal - Refitting**).

Check that the engine earthing is in order (oxidation, tightness, etc.).
Check the mounting, the air gap and the condition of the engine speed sensor (heating).

Check the timing adjustment (see **MR 388, Mechanical, 11A, Top and front of engine, Timing belt: Removal - Refitting**).

If the fault is still present, contact the Techline.

AFTER REPAIR	
	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF195

DF209 PRESENT OR STORED	EGR VALVE POSITION SENSOR CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage, deal first with fault DF113.**
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the EGR valve connector, component code **1460**.
Check the connection and condition of the **injection computer** connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation and continuity** of the following connections:
- **3GC** between components **1460** and **120**,
- **3EL** between components **1460** and **120,**
- **3JM** between components **1460** and **120**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check for **+5 V** on connection **3GC** of component **1460**.
Check for **earth** on connection **3JM** of component **1460**.
If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, replace the EGR valve, component code **1460** (see **MR 388 Mechanical, 14A, Emission control, Exhaust gas recirculation solenoid valve: Removal - Refitting**).
After replacing the EGR valve, use command **RZ002 EGR adaptives** to reinitialise the EGR valve offsets.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF209

DF218 PRESENT OR STORED	MICROCONTROLLER 1.DEF: RAM memory defect 2.DEF: Memory self-test

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is declared present with the **engine running**.
	Special note: If fault **DF218** is **present**, the engine stops, restarting is impossible, and the **level 2 warning light** illuminates.

Enter the individual injector corrections **(C2I)** using the **diagnostic tool (command SC002 Enter injector codes)**.
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF218

DF221 PRESENT OR STORED	CLUTCH CONTACT SIGNAL 1.DEF: Inconsistency

NOTES	None.

Check the connection and condition of the clutch pedal switch connector, component code **675**. Check the connection and condition of the injection computer connector, component code **120**. If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check **the continuity** between connections **86D** and **M** of the clutch pedal switch in the pressed position. If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it. If not correct, replace the clutch pedal switch (see **MR 388, Mechanical, 37A, Mechanical component controls, Clutch pedal: Removal - Refitting**).
Check for **earth** on connection **M** of the clutch pedal switch, component code **675**. If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, replace the clutch switch (see **MR 388, Mechanical, 37A, Mechanical components controls, Clutch pedal: Removal - Refitting**).
If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF221

DF236 PRESENT OR STORED	SERIOUS INJECTION FAULT WARNING LIGHT CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2 or Symbol 2.**

Clear the fault and check that the warning light is working properly with command **AC068 Injection fault warning light**.
Check the **connection** and **condition** of the serious injection fault warning light connector, component code **247**. Check the **connection** and **condition** of the injection computer connector, component code **120**. If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Check the **insulation** and **continuity** of the connections between components **247** and **120**. If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
If the fault is still present, replace the instrument panel, component code **247** (see **MR 388, (Logan / Sandero) or MR 423 (Thalia 2 / Symbol 2) Mechanical, 83A, Instrument panel, Instrument panel: Removal - Refitting**).
If the fault persists, contact your Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF236

DF242 PRESENT OR STORED	ENGINE SPEED SIGNAL OUTPUT CC.1: Short circuit to +12 V CO.0: Open circuit or short circuit to earth

NOTES	**Priority when dealing with a number of faults:** **– DF113 Sensor supply voltage, deal first with fault DF113.**
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the connection and condition of the engine speed sensor connector, component code **149**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3BG** between components **120** and **149**,
- **3BL** between components **120** and **149**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure **the resistance** of the engine speed sensor, component code **149** between connections **3BG** and **3BL**:
510 Ω < X < 850 Ω at **20˚C**
If the value is not correct, replace the engine speed sensor (see **MR 388 Mechanical, 13B Diesel injection, Crankshaft position sensor: Removal - Refitting**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF242

DF261 PRESENT OR STORED	TURBOCHARGER ACTUATOR CIRCUIT CC.1: Short circuit to +12 V CO.0: Open circuit or short circuit to earth

NOTES	**Special notes:** If fault **DF261** is **present**: the air flow regulation is switched off, the EGR valve is closed, and the turbocharging regulation is switched off. Injection defective message displayed on the instrument panel and reduced performance.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Run **TEST 11 Air line at the turbocharger**.
Run **TEST 5 Inlet circuit check**.
Run **TEST 10 Turbocharger control solenoid valve check.**
Run **TEST 12 Turbocharger.**
Check the **inlet** pressure signal, check the gear number when changing gear.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF261

DF427 PRESENT OR STORED	TURBO ACTUATOR CONTROL 1.DEF: At minimum stop 2.DEF: At maximum stop

NOTES	**Special notes:** If fault **DF427** is **present**, the air flow regulation is switched off, the EGR valve is closed, the turbocharging regulation is switched off and the performance is reduced.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Run **TEST 11 Air line at the turbocharger**.
Run **TEST 5 Inlet circuit check**.
Run **TEST 10 Turbocharger control solenoid valve check.**
Run **TEST 12 Turbocharger.**
Check the turbocharging pressure signal, check the gear number when changing gear.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF427

DF433 PRESENT OR STORED	FUEL CONSUMPTION SIGNAL (ADAC) CC.1: Short circuit to +12 V CO.0: Open circuit or short circuit to earth

NOTES	None.

Check the connection and condition of the instrument panel connector, component code **247**.
Check the connection and condition of the engine management computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector(s), otherwise replace the wiring.

Check the **insulation, continuity and the absence of interference resistance** of the following connection:
- **47H** between components **120** and **247**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF433

DF489 PRESENT OR STORED	AIR CONDITIONING COMPRESSOR CONTROL CO.0: Open circuit or short circuit to earth CC.1: Short circuit to +12 V

NOTES	**Conditions for applying fault finding procedures to stored faults** The fault is **present** after starting the engine and switching on the air conditioning or running command **AC180 Air conditioning compressor relay control**.
	Special notes: Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the condition of the clips of the air conditioning - cold loop relay on the engine fuse and relay board (see the relay board wiring diagrams for the vehicle concerned).
Replace the clips if necessary.

With the ignition on, check for **+ 12 V** on connection **3FB (**or **3FB2)** of the air conditioning - cold loop relay, component code **474**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Connect the bornier in place of the computer and check the **insulation, continuity,** and **absence of interference resistance** on the following connection:
● **38K** between components **120** and **474**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the **resistance** of the air conditioning - cold loop relay between connections **3FB (**or **3FB2)** and **38K** of the relay.
If the resistance is not between **75 Ω < X < 85 Ω** at **25˚C**, replace the relay.

If the fault persists, replace the air conditioning - cold loop relay.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF489

DF532 PRESENT OR STORED	ALTERNATOR CHARGE SIGNAL 1.DEF: Inconsistency 2.DEF: No signal

NOTES	**Conditions for applying the fault finding procedure to stored faults:** If the fault is **present** after the engine is started.
	Special notes: Use bornier **Elé. 1681** for any operations on the injection computer connectors.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check the condition of the alternator connector, component code **103**.
Check the condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **continuity** and **the absence of interference resistance** on the following connection:
● **2K** between components **120** and **103**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the charging circuit (see **Technical Note 6014A (Renault) or Technical Note 9859A (Dacia), Charging circuit check**).
Carry out the necessary repairs.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF532

DF631 PRESENT OR STORED	BRAKE LIGHT SWITCH SIGNAL 1.DEF: No signal 2.DEF: Inconsistency

NOTES	**Special notes:** The fault is declared **present** when decelerating, when the brake pedal is depressed.
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**
	Fault finding procedure application conditions for stored faults: Apply the fault finding procedure below if the fault is **present** or **stored**.

Check the connection and condition of the brake light switch connector, component code **160**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for **+ 12 V** on connection **AP1** or **AP10** of the brake light switch supply, component code **160**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **5A** between components **120** and **160**,
- **65A** between components **120** and **160**,
- **AP1** or **AP10** between components **160** and **1016**.

If the connection(s) are faulty and there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF631

DF859 PRESENT OR STORED	INJECTOR PROGRAMMING CYCLE NOT DONE

NOTES	**Fault finding procedure application conditions for stored faults:** The fault is declared present with the engine running.
	Priority in the event of a number of faults: **– Deal with all the other faults before fault DF859**
	Special notes: This fault is activated when the injectors have not been reset for **1800 miles (3000 km)**.

Leave the vehicle to run at idle speed until the engine is warm.
When the engine is warm (**PR064 COOLANT TEMPERATURE above 77˚C**), carry out the following test drive: – Drive at a speed of up to **30 mph (50 km/h)** and change into **5th gear**. – Stay in this gear and perform **8** accelerations from **30 mph (50 Km/h)** to **54 mph (90 Km/h)**.
At the end of the test drive, check that the fault is stored and clear the fault.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF886 PRESENT OR STORED	PRESENCE OF WATER IN THE DIESEL FUEL 1.DEF: Open circuit on the line or presence of water in the diesel fuel

NOTES	**Fault finding procedure application conditions:** The fault is declared **present** after the engine has been started.
	Priority in the event of a number of faults: **– DF057 Water in diesel fuel detector circuit,**
	Special note: If the fault is **present**, the **level 1 warning light** illuminates or the **water present in diesel fuel warning light** illuminates (if present on the instrument panel and if configured in injection).
	Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Check for water in the diesel filter. If water is present, bleed the diesel filter.
If there is a large quantity of water, run the first part of **Test 13: Diesel fuel conformity check** (Is the fuel cloudy or does it separate into 2 parts?)

Check the connection and condition of the water in diesel fuel sensor connector, component code **414**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check for a voltage between **13 V** and **14 V (with the engine running)** and **between 11.5 V** and **12.5 V (with the ignition on and the engine stopped)** on connection **3FB (**or **3FB2)** of the water in diesel fuel sensor connector, component code **414**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_DF886

DF886 CONTINUED	

A) Make sure the water detection sensor is properly connected.
– If not, clear the fault,
– Carry out a road test (speed **> 12 mph (20 km/h)** and engine speed **> 1200 rpm**) for more than **30 seconds**.
– If the fault does not recur, end of fault finding procedure.
– If the fault recurs, go to **step B.**

B) If the sensor is properly connected:
– Bleed the diesel filter unit (see **MR 388 Mechanical, 13A, Fuel supply, Diesel filter: Removal - Refitting**).
– Clear the fault.
– Carry out a road test (speed **> 12 mph (20 km/h)** and engine speed **> 1200 rpm**) for more than **30 seconds**.
If the fault does not recur, end the fault finding procedure.

C) If the fault recurs:
Check the **insulation** and **continuity** of the following connections:
– **3WT** between components **120** and **414**,
– **M** between components **120** and **414**.
If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If all these checks reveal no irregularities:
– Replace the water detection sensor (see **MR 388, Mechanical, 13A, Fuel supply, Diesel filter: Removal - Refitting**).
– Clear the fault.
– Carry out a road test (speed **> 12 mph (20 km/h)** and engine speed **> 1200 rpm**) for more than **30 seconds**, to confirm the repair.

Note:
When the water level in the fuel filter unit is below the sensor's electrodes, some driving conditions (turning, inclines) may cause the injection fault warning light to come on erroneously (the sensor's off-centre position in the fuel filter unit, combined with the driving condition, shows water detection, and hence the light comes on).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DF1083 PRESENT OR STORED	WATER IN DIESEL FUEL WARNING LIGHT CIRCUIT CC.1: Short circuit to +12 V CO.0: Open circuit or short circuit to earth

NOTES	**Special notes:** Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2 or Symbol 2.**

Clear the fault and check that the warning light is working properly with command **AC261 Water in fuel warning light**.

Check the connection and condition of the water in diesel fuel sensor connector, component code **414**.
Check the connection and condition of the injection computer connector, component code **120**.
If the connector(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the **insulation, continuity** and the **absence of interference resistance** on the following connections:
- **3WT** between components **120** and **414**,
- **Earth** between components **120** and **414**,

If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, replace the instrument panel, component code **247** (see **MR 388, (Logan / Sandero) or MR 423 (Thalia 2 / Symbol 2) Mechanical, 83A, Instrument panel, Instrument panel: Removal - Refitting**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

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NOTES	Only perform this conformity check after a **complete check** with the **diagnostic tool**. The values indicated in this conformity check are given as examples. **Application condition: With the engine idling, warm engine, coolant temperature > 80˚C**.

STATUS CHECK

Function	Parameter or status checked or action	Display and notes	Fault finding
Engine	**ET038:** Engine	**RUNNING**	**NONE**
Immobiliser	**ET003:** Immobiliser	**INACTIVE** Indicates the status of the immobiliser system. **INACTIVE:** The injection computer has recognised the immobiliser code transmitted by the UCH. **ACTIVE:** The injection computer does not recognise the immobiliser code transmitted by the UCH.	If **status ET003** is inconsistent, consult the UCH fault finding **(See 82D, Access - Security)**.
Air conditioning	**ET164:** Configuration with air conditioning	**YES - NO** States whether the vehicle is fitted with air conditioning or not. **YES:** Air conditioning is detected by the injection computer. **NO:** Air conditioning is not detected by the injection computer.	If not consistent with the vehicle equipment, test the **multiplex network** and follow the relevant procedure.
Fast idle speed	**ET023:** Fast idle speed request	**ABSENT** The **UCH** sends a fast idle request to the injection. **ABSENT:** no UCH request. **PRESENT:** UCH request.	If **status ET023** is inconsistent, consult the UCH fault finding **(See 87B, Passenger compartment connection unit)**.

NOTES	Only perform this conformity check after a **complete check** with the **diagnostic tool**. The values indicated in this conformity check are given as examples. **Application condition: With the engine idling, warm engine, coolant temperature > 80˚C**.

STATUS CHECK (CONTINUED 1)

Function	Parameter or status checked or action		Display and notes	Fault finding
Air conditioning	**ET116:**	Air conditioning authorisation	**NO** **YES:** The UCH must send a compressor starting request to the injection. The coolant pressure sensor must not be defective. Satisfactory engine operating conditions (coolant temperature, engine load etc.). **NO:** One of the above conditions has not been met.	**NONE**
EGR	**ET008:**	EGR solenoid valve control	**INACTIVE** Indicates the status of the EGR valve control. **INACTIVE:** The valve is not controlled by the computer. **ACTIVE:** The valve is controlled by the computer.	In the event of a fault, apply the interpretation of faults **DF016 EGR control circuit** and **DF114 EGR solenoid valve circuit**.
Preheating	**ET007:**	Preheating unit control	**ACTIVE - INACTIVE** Shows the status of the preheating unit control.	In the event of a fault, consult the interpretation of fault **DF017 Preheating unit control circuit**.

NOTES	Only perform this conformity check after a **complete check** with the **diagnostic tool**. The values indicated in this conformity check are given as examples. **Application condition: With the engine idling, warm engine, coolant temperature > 80˚C**.

STATUS CHECK (CONTINUED 2)

Function	Parameter or status checked or action		Display and notes	Fault finding
Brake contact	**ET122:**	Brake contact signal no. 1	**INACTIVE** **INACTIVE:** Brake pedal released. **ACTIVE:** Brake pedal depressed.	In the event of a fault, refer to the interpretation of status **ET122**.
	ET123:	Brake switch no. 2 signal	**INACTIVE** Indicates recognition of brake pedal contacts. **INACTIVE:** Brake pedal released. **ACTIVE:** Brake pedal depressed.	If **ET123** is inconsistent, test the multiplex network using the **diagnostic tool**.
Clutch pedal	**ET233:**	Clutch pedal	**RELEASED** Indicates recognition of clutch pedal contacts. **RELEASED:** Pedal released. **DEPRESSED:** Pedal depressed.	In the event of a fault, refer to the interpretation of status **ET233**.

NOTES	Only perform this conformity check after a **complete check** with the **diagnostic tool**. The values indicated in this conformity check are given as examples. **Application condition: With the engine idling, warm engine, coolant temperature > 80˚C**.

PARAMETER CHECK

Function	Parameter or status checked or action		Display and notes	Fault finding
Idle speed regulation	**PR010:**	Idle speed regulation setpoint	Shows the speed of rotation the engine should reach at idle speed: approximately **825 rpm**.	In the event of a fault, consult the interpretation of faults **DF007 Rail pressure sensor circuit**, **DF024 Low pressure actuator control circuit**, and **DF053 Rail pressure regulation function**.
Accelerator pedal	**PR030:**	Accelerator pedal position	**PR030 = 0 %** Gives the accelerator pedal position in **%**.	In the event of a fault, apply the interpretation of faults **DF008 Pedal potentiometer gang 1 circuit, DF009 Pedal potentiometer gang 2 circuit, DF113 Sensor supply voltage**, and **DF122 Pedal potentiometer gang 2 supply voltage**.
Coolant temperature	**PR064:**	Coolant temperature	When warm: **90˚C** Indicates the engine coolant temperature in ˚**C**. Default value: 80˚C.	In the event of a fault, refer to the interpretation of parameter **PR064**.
Vehicle speed	**PR089:**	Vehicle speed	Gives the vehicle speed in **mph (km/h)**. This parameter is sent by the ABS computer or the vehicle speed computer.	Refer to fault finding for the ABS system or the vehicle speed computer.
Air temperature	**PR058:**	Air temperature	Gives the inlet air temperature in ˚**C**. This information is supplied by the air temperature sensor incorporated in the air flow sensor. **Default value: 20˚C.**	In the event of a fault, consult the interpretation of fault **DF056 Air flow sensor circuit**.

NOTES	Only perform this conformity check after a **complete check** with the **diagnostic tool**. The values indicated in this conformity check are given as examples. **Application condition: With the engine idling, warm engine, coolant temperature > 80˚C**.

PARAMETER CHECK (CONTINUED 1)

Function	Parameter or status checked or action		Display and notes	Fault finding
Fuel temperature	**PR063:**	Fuel temperature	Cold = **PR064 Coolant temperature** Warm: **50˚C**. Gives the fuel temperature in **˚C**. This value is supplied by the **fuel temperature sensor**. **Default value: 30˚C.**	If there is a fault, use the interpretation of fault **DF098 Fuel temperature sensor circuit**.
Atmospheric pressure	**PR035:**	Atmospheric pressure	Indicates the atmospheric pressure in **mbar**. The sensor is built into the computer.	In the event of inconsistency, with the engine stopped and ignition on, check that parameter **PR035 ≈ PR312 ≈ local atmospheric pressure**.
Manifold pressure	**PR312:**	Manifold pressure	Gives the pressure in the inlet circuit in **mbar**.	
Battery voltage	**PR074:**	Battery voltage	**12 V < PR074 < 14.4 V.**	In the event of a fault, apply the fault finding procedure for the **Charging circuit**.
Air flow	**PR018:**	Estimated air flow	Air flow estimated by the injection computer in **mg/st**.	**NONE**
Fuel flow	**PR017:**	Fuel flow	Gives the fuel flow at the high pressure pump outlet in **mg/st**.	**NONE**

NOTES	Only perform this conformity check after a **complete check** with the **diagnostic tool**. The values indicated in this conformity check are given as examples. **Application condition: With the engine idling, warm engine, coolant temperature > 80˚C**.

PARAMETER CHECK (CONTINUED 2)

Function	Parameter or status checked or action	Display and notes	Fault finding
Rail pressure	**PR038:** Rail pressure	Indicates the pressure in **bar** of the diesel fuel in the injector rail. This pressure is supplied by the sensor on the rail. **Default value: 2000 bar.**	If there is a fault, use the interpretation of fault **DF007 Rail pressure sensor circuit**.
	PR008: Rail pressure setpoint	**PR008 = 375 bar** (Engine starting pressure setpoint) Cold: **405 bar** Warm: **230 bar** Gives the theoretical pressure value for optimum engine operation.	**NONE**
EGR valve	**PR051:** EGR valve position feedback	**PR051 = 0 %** Indicates the actual value of the EGR valve position. **PR051 = PR005.** **Default value 30%.**	In the event of a fault, apply the interpretation of faults **DF209 EGR valve position sensor circuit, DF016 EGR control circuit** and **DF114 EGR solenoid valve circuit**.
	PR052: EGR valve opening setpoint	in **%** Gives a theoretical EGR valve opening value for optimum engine operation. **PR005 = PR051.**	

NOTES	Only perform this conformity check after a **complete check** with the **diagnostic tool**. The values indicated in this conformity check are given as examples. **Application condition: With the engine idling, warm engine, coolant temperature > 80˚C**.

PARAMETER CHECK (CONTINUED 3)

Function	Parameter or status checked or action		Display and notes	Fault finding
Pedal load	**PR217:**	Pedal load (gang 1)	Indicates the voltage supply percentage for gangs 1 and 2 of the pedal potentiometer. **10% < PR217 < 20%, 5% < PR218 < 15%.**	In the event of a fault, apply the interpretation of faults **DF008 Pedal potentiometer gang 1 circuit, DF009 Pedal potentiometer gang 2 circuit, DF113 Sensor supply voltage**, and **DF122 Pedal potentiometer gang 2 supply voltage**.
	PR218:	Pedal load (gang 2)		
Sensor voltage	**PR077:**	EGR valve position sensor voltage	**0.5 V < PR077 < 4.8 V**	In the event of a fault, apply the interpretation of fault **DF209 EGR valve position sensor circuit**.
	PR344:	Manifold pressure sensor voltage	Shows the voltage in **volts** supplied by the computer to feed the inlet pressure sensor.	In the event of a fault, apply the interpretation of fault **DF089 Inlet manifold pressure sensor circuit**.
	PR080:	Rail pressure sensor voltage	**0.5 V < PR080 < 4.5 V** Shows the voltage in **volts** supplied by the computer to the rail pressure sensor. **Default value: 4.5 V.**	In the event of a fault, apply the interpretation of **DF007 Rail pressure sensor circuit**.
Pressure	**PR037:**	Refrigerant pressure	**2 bar < PR037 < 27 bar** Gives the value in **bar** of the refrigerant pressure in the system. **Default value: 0 bar.**	In the event of a fault, apply the interpretation of **DF049 Refrigerant sensor circuit**.
Air flow	**PR019:**	Linearised air flow	Gives the linearised air flow in **g/s**.	In the event of a fault, apply the interpretation of fault **DF056 Air flow sensor circuit**.

Tool Status	Diagnostic tool title
ET003	Immobiliser
ET007	Preheating unit control
ET008	EGR solenoid valve control
ET023	Fast idle speed request
ET038	Engine
ET039	Brake pedal
ET116	Air conditioning authorisation
ET122	Brake switch no. 1 signal
ET123	Brake switch no. 2 signal
ET164	Configuration with air conditioning
ET200	Fuel flow controller
ET227	Key
ET233	Clutch pedal
ET432	Wastegate regulation
ET563	Flow capacity function
ET637	New pump chamber filling

ET122	BRAKE CONTACT SIGNAL No. 1

NOTES	**Special notes:** Carry out the checks only if the **INACTIVE** and **ACTIVE** statuses are not consistent with the pedal position. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

INACTIVE STATUS Brake pedal depressed.

If the brake lights operate:
– Check the **continuity** of connection **5A** between the brake light switch connector, component code **160** and the computer connector, component code **120**.
If the brake lights do not operate:
– Check the condition and fitting of the brake light switch and brake lights fuse.
– Remove and test the operation of the brake light switch:

Only for **K9K 718, 740 engines**	**Continuity** between connections:	**Insulation** between connections:
Switch pressed (Brake pedal released)	**5A** and **AP10**	**65A** and **AP10**
Switch released (Brake pedal depressed)	**65A** and **AP10**	**5A** and **AP10**

Only for the **K9K engines 790, 792, 794, 796**	**Continuity** between connections:	**Insulation** between connections:
Switch pressed (Brake pedal released)	**5A** and **AP1**	**65A** and **AP1**
Switch released (Brake pedal depressed)	**65A** and **AP1**	**5A** and **AP1**

If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
– If necessary, replace the switch (see **MR 388, Mechanical, 37A, Mechanical component controls, Brake pedal: Removal - Refitting**).
– Check for **+ after ignition feed** on connections **AP1** of the brake light switch connector.

AFTER REPAIR	Deal with any faults. Clear the faults from the computer memory. Switch off the ignition and carry out a road test followed by a test with the **diagnostic tool**.

ET122 CONTINUED	

ACTIVE STATUS Brake pedal released.

– Check the condition and the mounting of the brake light switch, the brake lights fuse and the conformity of the bulbs.
– Remove and test the operation of the brake light switch:

Only for **K9K 718, 740 engines**	**Continuity** between connections:	**Insulation** between connections:
Switch engaged (Brake pedal released)	**5A** and **AP10**	**65A** and **AP10**
Switch released (Brake pedal depressed)	**65A** and **AP10**	**5A** and **AP10**

Only for the **K9K engines 790, 792, 794, 796**	**Continuity** between connections:	**Insulation** between connections:
Switch pressed (Brake pedal released)	**5A** and **AP1**	**65A** and **AP1**
Switch released (Brake pedal depressed)	**65A** and **AP1**	**5A** and **AP1**

If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
– If necessary, replace the switch (see **MR 388, Mechanical, 37A, Mechanical component controls, Brake pedal: Removal - Refitting**).
– Check the **insulation** against **+12 V** of connection **5A** between the brake light switch connector and the computer connector.

AFTER REPAIR	Deal with any faults. Clear the faults from the computer memory. Switch off the ignition and carry out a road test followed by a test with the **diagnostic tool**.

ET233	CLUTCH PEDAL

NOTES	**Special notes:** Carry out the checks only if the **RELEASED** and **DEPRESSED** statuses are not consistent with the pedal position. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2.**

Only for K9K 718, 740 engines

"RELEASED" STATUS and clutch pedal depressed.

Check the condition and the fitting of the **clutch switch**, component code **675**.
Check and ensure **the continuity** of connection **86D** between the clutch switch connector and the injection computer connector, component code **120**.
Check and ensure the presence of **earth** on connection **M** of component **675**.
If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Remove the clutch switch and check that it is operating correctly:

	Continuity between tracks	Insulation between tracks
Switch pressed (Clutch pedal released)	**86D** and **M**	**-**
Switch released (Clutch pedal depressed)	**-**	**86D** and **M**

If necessary, replace the switch (see **MR 388, Mechanical, 37A, Mechanical component controls, Clutch pedal: Removal - Refitting**).

AFTER REPAIR	Deal with any faults. Clear the faults from the computer memory. Switch off the ignition and carry out a road test followed by a test with the **diagnostic tool**.

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ET233 CONTINUED	

DEPRESSED STATUS and clutch pedal released.

Check the condition and fitting of the clutch switch.
Remove the clutch switch and test its operation:

	Continuity between tracks	Insulation between tracks
Switch pressed (Clutch pedal released)	**86D** and **M**	**-**
Switch released (Clutch pedal depressed)	**-**	**86D** and **M**

If necessary, replace the switch (see **MR 388, Mechanical, 37A, Mechanical component controls, Clutch pedal: Removal - Refitting**).
Check and ensure **the insulation to earth** of the connection **86D** between components **675** and **120**.
If the connection is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Deal with any faults. Clear the faults from the computer memory. Switch off the ignition and carry out a road test followed by a test with the **diagnostic tool**.

Tool parameter	Diagnostic tool title
PR001	Advance
PR005	EGR valve opening setpoint
PR008	Rail pressure setpoint
PR010	Idle speed regulation setpoint
PR017	Fuel flow
PR018	Estimated air flow
PR019	Linearised air flow
PR021	EGR request
PR026	EGR position offset
PR030	Accelerator pedal position
PR033	Requested inlet pressure
PR035	Atmospheric pressure
PR036	Linearised atmospheric pressure
PR037	Refrigerant pressure
PR038	Rail pressure
PR040	Linearised rail pressure
PR051	EGR valve position feedback
PR055	Engine speed
PR057	Linearised fuel temperature
PR058	Air temperature
PR063	Fuel temperature
PR064	Coolant temperature
PR065	Linearised coolant temperature

Tool parameter	Diagnostic tool title
PR074	Battery voltage
PR077	EGR valve position sensor voltage
PR080	Rail pressure sensor voltage
PR089	Vehicle speed
PR125	Power absorbed by the air conditioning compressor
PR136	EGR position
PR148	Pedal potentiometer voltage gang 2
PR175	Vehicle speed/engine speed ratio
PR217	Pedal load (gang 1)
PR218	Pedal load (gang 2)
PR311	Manifold air temperature
PR312	Manifold pressure
PR313	Linearised manifold pressure
PR315	Linearised manifold air temperature
PR316	Linearised sensor supply voltage
PR344	Manifold pressure sensor voltage
PR400	New EGR valve offset
PR634	Air flow request

PR058	AIR TEMPERATURE

NOTES	**Special notes:** This circuit is not present on vehicles equipped with **K9K 790 and 794** engines. Only apply the checks if the parameter is inconsistent. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2**.

Check the condition of the air flowmeter connections, component code **799**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
If necessary, replace the air temperature - pressure sensor (see **MR 388, Mechanical, 12A, Fuel mixture, Air flowmeter: Removal - Refitting**).
Measure the **resistance** between connections **3B** and **3DW** of the air flowmeter.
If the resistance of the air temperature - pressure sensor is not:
(theoretical values)
41255 Ω < X < 47492 Ω at **–40˚C,**
14260 Ω < X < 16022 Ω at **–20˚C,**
5497 Ω < X < 6050 Ω at **0˚C,**
2353 Ω < X < 2544 Ω at **20˚C,**
1114 Ω < X < 1186 Ω at **40˚C,**
569 Ω < X < 597 Ω at **60˚C,**
310 Ω < X < 322 Ω at **80˚C,**
180 Ω < X < 185 Ω à **100˚C.**
replace the air temperature - pressure sensor (see **MR 388, Mechanical, 12A, Fuel mixture, Air flowmeter: Removal - Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

PR064	COOLANT TEMPERATURE

NOTES	**Special notes:** Only apply the checks if the parameter is inconsistent. Use the **Technical Note wiring diagram, Logan, Sandero, Thalia 2, or Symbol 2**.

Check the condition of the coolant temperature sensor connections, component code **244**.
If the connector is faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.
Replace the sensor if necessary.
Measure the **resistance** between connections **3C** and **3JK** of the coolant temperature sensor, component code **244**:
If the resistance of the coolant temperature sensor is not:
(theoretical values)
11.5 Ω < X < 13.5 Ω at **–10˚C,**
2140 Ω < X < 2364 Ω at **25˚C,**
773 Ω < X < 851 Ω at **50˚C,**
275 Ω < X < 291 Ω at **80˚C,**
112 Ω < X < 118 Ω at **110˚C,**
replace the coolant temperature sensor (see **MR 388, Mechanical, 19A, Cooling, Coolant temperature sensor, Removal - Refitting**).

AFTER REPAIR	Deal with any faults displayed by the **diagnostic tool**. Clear the computer memory. Carry out a road test followed by another check with the **diagnostic tool**.

DCM1.2_V08_PR064

Tool command	Diagnostic tool title	Comments
RZ001	Fault memory	This command is used for clearing the computer's stored faults
RZ002	EGR programming adaptives	Use this command when replacing the EGR valve
RZ004	Pressure regulation adaptives	Use this command when simultaneously replacing the four injectors and after replacing/retightening the accelerometer. It enables you to reset the injector programming adaptives
RZ005	Programming	This command enables you to reinitialise the entire computer configuration.
AC001	Preheating unit	Activating this actuates the preheating unit to test the heater plug supply.
AC002	EGR solenoid valve	Activating this lets you listen to the mechanical operation of the EGR valve.
AC004	Turbocharging solenoid valve	Activating this lets you listen for the turbocharging solenoid valve working
AC005	Cylinder 1 injector	Activating this lets you listen to the operation of the injector on cylinder 1
AC006	Cylinder 2 injector	Activating this lets you listen to the operation of the injector on cylinder 2.
AC007	Cylinder 3 injector	Activating this lets you listen to the operation of the injector on cylinder 3.
AC008	Cylinder 4 injector	Activating this lets you listen to the operation of the injector on cylinder 4.
AC010	High pressure pump	Activating this lets you listen to the operation of the high pressure pump.
AC028	Static test	Activating this enables fault finding to be run on the EGR, the high pressure pump, and the water in fuel warning light circuits.

Tool command	Diagnostic tool title	Comments
AC029	High pressure circuit sealing test.	Activating this will request the injection system to detect a leak on the high pressure circuit after an operation has been carried out. This is activated with the engine warm and running and consists of unladen acceleration repeated 4 times.
AC056	Power-assisted steering assembly relay	Activating this actuates the power assisted steering pump.
AC060	Preheating indicator light	Activating this actuates the preheating warning light on the instrument panel.
AC061	Overheating warning light.	Activating this actuates the engine overheating warning light on the instrument panel.
AC068	Injection fault warning light.	Activating this actuates the injection fault warning light on the instrument panel.
AC099	Deactivation of electrical consumers	This activation only deactivates the preheating function.
AC100	End deactivation of electrical consumers	Activating this authorises preheating after programming or reprogramming the injection computer (see **Replacement of components**).
AC153	High-speed fan assembly	Activating this actuates the high speed fan relay to test the supply to the high speed fan.
AC154	Fan low speed.	Activating this actuates the low speed fan relay to test the supply to the low speed fan.
AC155	MIL warning light	Activating this actuates the MIL warning light on the instrument panel (EOBD emission control warning light).
AC180	Air conditioning compressor relay control.	Activating this enables you to listen for the correct operation of the air conditioning compressor.
AC212	New pump chamber filling	This must only be activated after the high pressure pump has been replaced (see **Replacement of components**). This command enables the pump reprime sequence to be activated.
AC250	Heating resistor 1 relay.	Activating this actuates the heating resistor no. 1 relay to test the heating resistor supply.

Tool command	Diagnostic tool title	Comments
AC251	Heating resistor 2 relay.	Activating this actuates the heating resistor no. 2 relay to test the heating resistor supply.
AC252	Heating resistor 3 relay.	Activating this actuates the heating resistor no. 3 relay to test the heating resistor supply.
AC261	Water in diesel fuel indicator light	Activating this actuates the water present in fuel warning light; this warning light is located on the instrument panel, if fitted to the vehicle.
SC001	Write saved data	Use this command after replacing or (re)programming the computer (if the data were saved using command **SC003 Save computer data**).
SC002	Enter injector codes	This command enables you to manually write the calibration code marked on the injectors. Run this command after replacing the injectors.
SC003	Save computer data	This command saves the computer's operating data, C2I (individual injector correction) parameters and engine programming adaptives. Run this command before replacing or (re)programming the computer.

NOTES	**Only consult this customer complaint after a complete check with the diagnostic tool.**

No dialogue with the computer → **ALP1**

Starting fault:

- **The engine will not start** → **ALP2**
- **The engine starts with difficulty, or starts then stalls** → **ALP3**
- **Starting difficult with Warm engine** → **ALP4**
- **Rough idling speed (pumping)** → **ALP5**
- **Idling speed too high or too low** → **ALP6**

Behaviour while driving:

- Erratic acceleration/deceleration and engine racing → ALP7
- Acceleration gap → ALP8
- Engine cut-out (stalling) → ALP9
- Engine bucking → ALP10
- Loss of power → ALP11
- Too much power → ALP 12
- Excessive consumption → ALP 13
- Overspeed when releasing accelerator or changing gear → ALP 14
- Engine dies on pulling away → ALP 15

Noise, odours, or smoke:

- Engine rattling, noisy engine, turbocharger noise → ALP 16
- Blue, white or black smoke → ALP 17
- Smoke (blue, white or black) on acceleration → ALP 18

ALP1	No dialogue with the computer

NOTES	**Only consult this customer complaint after a complete check with the diagnostic tool.**

Try to establish dialogue with a computer on another vehicle to check that **the diagnostic tool** is not faulty. If the tool is not at fault, and dialogue cannot be established with any other computer on the same vehicle, the cause could be a faulty computer interfering on the multiplex network. Check the battery voltage and make the necessary adjustments to obtain a correct voltage (**9.5 V < Battery voltage < 17.5 V**).

↓

Carry out fault finding on the multiplex network using the **diagnostic tool** (see **88B, Multiplexing**).

↓

Check the presence and the condition of the injection fuses in the engine fuse box.
Check the connection of the injection computer connectors, component code **120** and the condition of its connections.
Check the injection computer **earths** (quality, oxidation, earth bolts secure on the battery terminal).
Check that the supply to the computer is correct:
- **NH** or **N** between **earth** and component **120**.
- **AP29** or **AP15** between components **1016** and **120.**

If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP01

ALP1 CONTINUED	

A

Ensure that the diagnostic socket, component code **225,** has properly power supply:
- **+ Before ignition feed on connection BP56** of component **225.**
- **+ After ignition feed on connection AP10** of component **225.**
- **Earth on connections MAM** and **NC** of component **225.**

If the connection(s) are faulty and if there is a repair procedure (see **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If dialogue has still not been established after these various checks, contact the Techline.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP2	The engine will not start

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the fuel tank is correctly filled and that the appropriate fuel is used.
Run **test 13 Diesel fuel conformity check**.

↓

Check the levels of engine oil and coolant.

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Is the catalytic converter clogged or damaged? — YES → Replace the **catalytic converter** (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO ↓

Check the electric circuit, use **TEST 2 Electrical circuit check**.

↓

Check the electrical conformity of the **heater plugs** (the resistance of the heater plug must be **less than 2 Ω).**

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP02

ALP2 CONTINUED 1	

(A)

Is the timing set correctly? — NO → Carry out the necessary repairs.

YES

Visually check the condition of the engine wiring harness.

Does the starter motor operate correctly (minimum engine speed = **200 rpm**)? — NO → Carry out the necessary repairs.

YES

Is the compression in order? — NO → Carry out the necessary repairs.

YES

Using the **diagnostic tool**, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

Is **PR038 Rail pressure less than 50 bar under + after ignition feed?** — NO → Apply the fault finding procedure for **DF007 Rail pressure sensor circuit**.

YES

(B)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP2 CONTINUED 2	

B

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

Check the injectors, use **TEST 3 Injector check**.

Visually check that there are no leaks on the high pressure circuit, use **TEST 7 High pressure circuit sealing check**.

Check the high pressure system, use **TEST 6 High pressure system check**.

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP3	The engine starts with difficulty, or starts then stalls

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the fuel tank is correctly filled and that the appropriate fuel is used.
Run **test 13 Diesel fuel conformity check**.

↓

Check the levels of engine oil and coolant.

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Is the catalytic converter clogged or damaged? — YES → Replace the **catalytic converter** (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO ↓

Check the electrical conformity of the **heater plugs** (the resistance of the heater plug must be **less than 2 Ω**).

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP03

ALP3 CONTINUED 1	

A

Is the timing set correctly? — NO → Carry out the necessary repairs.

YES

Is the compression in order? — NO → Carry out the necessary repairs.

YES

Visually check the condition of the engine wiring harness.

Check the electric circuit, use **TEST 2 Electrical circuit check**.

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

B

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP3 CONTINUED 2	

B

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

Visually check that there are no leaks on the high pressure circuit, use **TEST 7 High pressure circuit sealing check**.

Check the high pressure system, use **TEST 6 High pressure system check**.

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP4	Starting difficult with warm engine

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the tank is filled correctly.

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Is the compression in order? — NO → Carry out the necessary repairs.

YES ↓

Is the catalytic converter clogged or damaged? — YES → Replace the **catalytic converter** (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO ↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Visually check the condition of the engine wiring harness.

↓

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP04

ALP4 CONTINUED	

A

Control the injectors using commands:
– **AC005: Cylinder 1 injection,**
– **AC006: Cylinder 2 injection,**
– **AC007: Cylinder 3 injection,**
– **AC008: Cylinder 4 injection.**
Can you hear the valve moving 1 metre from the vehicle?

NO → Run **TEST 9 Diesel filter check.**
If the test is correct, replace only the **faulty injector(s)** (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**).

YES

Check the high pressure system, use **TEST 6 High pressure system check**.

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP5	Rough idling speed (pumping)

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the tank is correctly filled and that the appropriate fuel is used.
Run **test 13 Diesel fuel conformity check**.

↓

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Visually check the condition of the engine wiring harness.

↓

Visually check that there are no leaks on the high pressure circuit, use **TEST 7 High pressure circuit sealing check**.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP05

ALP5 CONTINUED	

A

Is the compression in order? — NO → Carry out the necessary repairs.

YES

Check the electrical conformity of the **heater plugs** (the resistance of the heater plug must be **less than 2 Ω).**

Check the high pressure system, use **TEST 6 High pressure system check**.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP6	Idling speed too high or too low

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Check the electric circuit, use **TEST 2 Electrical circuit check**.

↓

Is the clutch clearance set correctly? — NO → Carry out the necessary repairs.

YES ↓

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

↓

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP06

ALP7	Erratic acceleration/deceleration and engine racing

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the engine has not sucked up its oil (engine racing).

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Visually check the condition of the engine wiring harness.

↓

Check the injectors, use **TEST 3 Injector check**.

↓

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

↓

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP07

ALP8	Acceleration gap

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Is the compression in order? — NO → Carry out the necessary repairs.

YES ↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Check that the turbocharger is working correctly.
Run **test 11 Air line at the turbocharger**.
Run **test 10 Turbocharger solenoid valve check**.
Run **test 12 Turbocharger**.
Is the turbocharger in operating correctly?

NO → Carry out the necessary repairs.

YES ↓

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP08

ALP8 CONTINUED	

A

Visually check that there are no leaks on the high pressure circuit, use **TEST 7 High pressure circuit sealing check**.

Check the injectors, use **TEST 3 Injector check**.

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP9	Engine cut-out (stalling)

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the fuel tank is correctly filled and that the appropriate fuel is used.
Run **test 13 Diesel fuel conformity check**.

↓

Check the levels of engine oil and coolant.

↓

Check that the engine has not sucked up its oil (engine racing).

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Is the catalytic converter clogged or damaged? — YES → Replace the **catalytic converter** (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO ↓

Visually check the condition of the engine wiring harness.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP09

ALP9 CONTINUED	

A

Check the electric circuit, use **TEST 2 Electrical circuit check**.

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

Visually check that there are no leaks on the high pressure circuit, use **TEST 7 High pressure circuit sealing check**.

Check the injectors, use **TEST 3 Injector check**.

Check the high pressure system, use **TEST 6 High pressure system check**.

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP10	Engine bucking

NOTES	**Special note:** Only consult this customer complaint after a **complete check** using the **diagnostic tool** (see **System operation, Function: Fuel supply management (timing, flow rate, and pressure), flow capacity function (VLC) section**).

Check that the fuel tank is filled and that the appropriate fuel is used.
Run **TEST 13 Diesel fuel conformity check**.

↓

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Is the engine wiring harness cut or pinched? — YES → Carry out the necessary repairs.

NO ↓

Is the compression in order? — NO → Carry out the necessary repairs.

YES ↓

Is the valve clearance set correctly? — NO → Carry out the necessary repairs.

YES ↓

Check the high pressure pump, use **TEST 6 High pressure system check**.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP10

ALP10 CONTINUED

A

Is status ET563 Flow capacity function ACTIVE?

YES → The vehicle has entered the Flow capacity function program. This function is activated more easily when: the external temperature is high, the fuel level in the tank is at 1/4, the vehicle is laden and when the speed is high.

NO

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

Check the diesel filter.

Is it close to the replacement mileage?

YES

Replace the **diesel filter** (see **MR 388 Mechanical, 13A, Fuel supply, Diesel filter: Removal - Refitting**).

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP11	Loss of power

NOTES	**Special note:** Only address this customer complaint after a **complete check** with **the diagnostic tool**. See explanation for flow capacity function in system operation.

Is status **ET563 Flow capacity function ACTIVE**?

NO

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

YES

Check the diesel filter.

Is it close to the replacement mileage?

NO

YES

Replace the diesel filter (see **MR 388 Mechanical, 13A, Fuel supply, Diesel filter: Removal - Refitting**).

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

Is the engine oil level correct?

NO

Top up the oil level.

YES

A

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP11

ALP11 CONTINUED

A

Is the catalytic converter clogged or damaged?

YES → Replace the catalytic converter (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO

Check that the turbocharger is working correctly.
Run **TEST 11 Air line at the turbocharger**.
Run **TEST 10 Turbocharger solenoid valve check.**
Run **TEST 12 Turbocharger**.

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

Check the injectors, use **TEST 3 Injector check**.

Check the high pressure pump, use **TEST 6 High pressure system check**.

Is the compression in order?

YES

Is the valve clearance set correctly?

YES

Contact the Techline if the customer complaint is still present.

NO

Carry out the necessary repairs.

NO

Carry out the necessary repairs.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP 12	Too much power

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

In this case, the control solenoid valve is jammed: it is possible to increase the vacuum but not reduce it afterwards.

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Check that the engine has not sucked up its oil (engine racing).

↓

Check that the turbocharger is working correctly.
Run **TEST 11 Air line at the turbocharger**.
Run **TEST 10 Turbocharger solenoid valve check**.
Run **TEST 12 Turbocharger**.

↓

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

↓

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP12

ALP 12 CONTINUED 1	

In this case, it may be the solenoid valve dynamic specification which is at fault (atmospheric pressure resetting time). Final fault finding is carried out by measuring this specification on a special bench.

Check that solenoid valve casing does not have any splashes of fluid on it which may impede the breather (water, engine oil, gearbox oil, brake fluid, coolant, mud, dust, or any other substance).
Instructions:
The solenoid valve must be set up **450 mm** above the ground, in an area free from water, mud, or any other fluid.
Cleaning with a high pressure jet is forbidden.

↓

Is there coolant present?

NO ↓

Is the solenoid valve subjected to significant fluctuations or impacts?
Instructions:
The solenoid valve must be correctly secured to its mounting.
Contact with the engine environment is forbidden.

NO ↓

Check the turbocharger regulation control (no partial jamming, etc.).

↓

(A)

YES ↓

Follow the recommendations below.

↓

(A)

YES ↓

Follow the recommendations below.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP 12 CONTINUED 2	

A

Is the turbocharger control operating?

YES

Replace the solenoid valve.

If the fault is still present, contact the Techline.

NO

Carry out the necessary repairs.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP 13	Excessive consumption

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the fuel tank is correctly filled and that the appropriate fuel is used.
Run **TEST 13 Diesel fuel conformity check**.

↓

Check the levels of engine oil and coolant.

Is the fuel temperature sensor leaking? — YES → Replace the **fuel temperature sensor** (see **MR 388, Mechanical, 13B, Diesel injection, Rail pressure sensor: Removal - Refitting**).

NO ↓

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

↓

Visually check that there are no leaks on the high pressure circuit, use **TEST 7 High pressure circuit sealing check**.

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

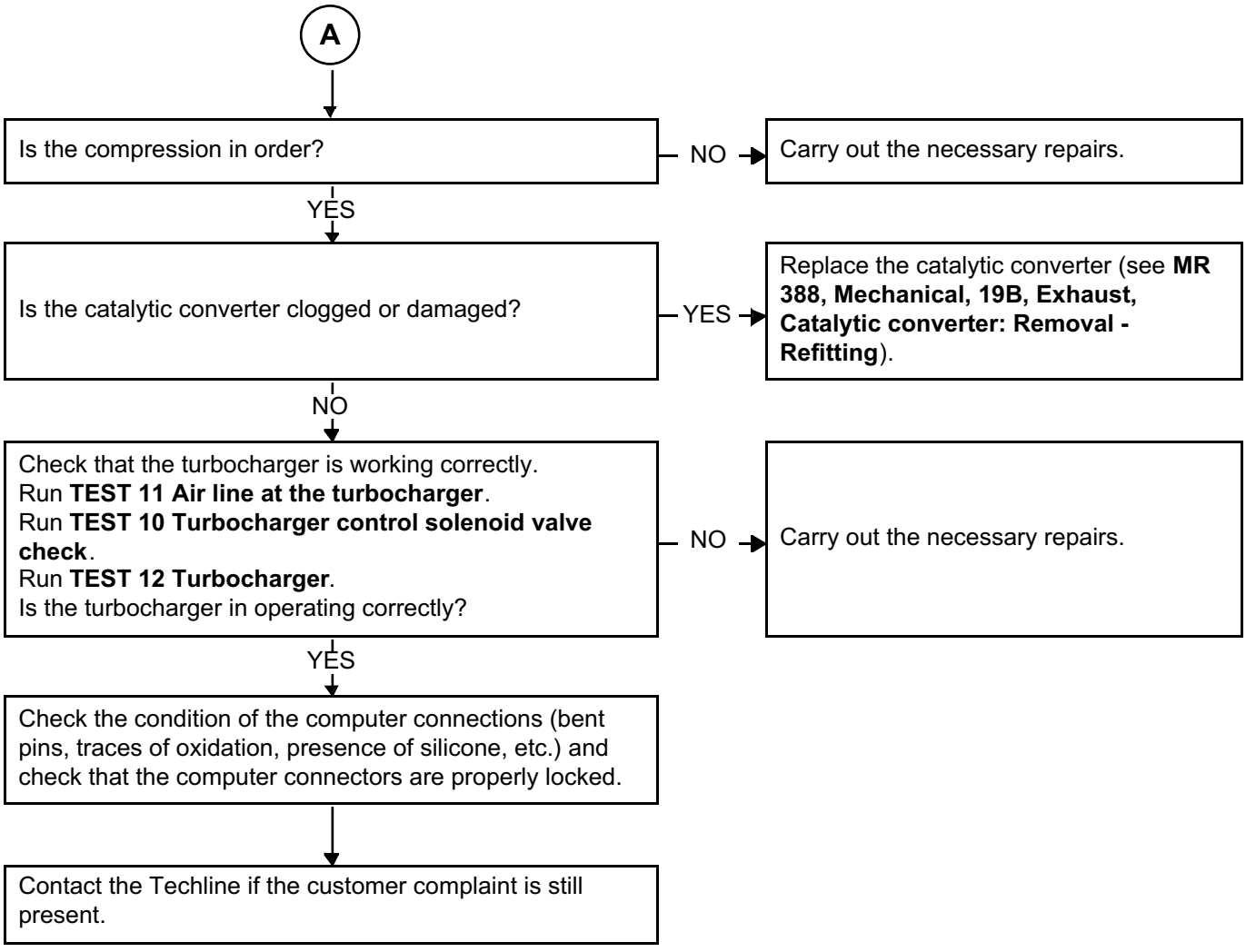
↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP13

ALP 13 CONTINUED	


A
Is the compression in order?
NO
Carry out the necessary repairs.
YES
Is the catalytic converter clogged or damaged?
YES
Replace the catalytic converter (see MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting).
NO
Check that the turbocharger is working correctly.
Run TEST 11 Air line at the turbocharger.
Run TEST 10 Turbocharger control solenoid valve check.
Run TEST 12 Turbocharger.
Is the turbocharger in operating correctly?
NO
Carry out the necessary repairs.
YES
Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.
Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP 14	Overspeed when releasing accelerator or changing gear

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that there are no obstacles that might impede the accelerator pedal travel (carpet, hard point, etc.).

↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Visually check the condition of the engine wiring harness.

↓

Is the clutch clearance set correctly? — NO → Carry out the necessary repairs.

YES ↓

Check that the engine has not sucked up its oil (engine racing).

↓

Check that the turbocharger is working correctly.
Run TEST 11 Air line at the turbocharger.
Run TEST 10 Turbocharger solenoid valve check.
Run TEST 12 Turbocharger.
Is the turbocharger correct? — NO → Carry out the necessary repairs.

YES ↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP14

ALP 14 CONTINUED	

A

Check the injectors, use **TEST 3 Injector check**.

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP 15	Engine dies on pulling away

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Is the clutch clearance set correctly?

NO → Carry out the necessary repairs.

YES ↓

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

Is the catalytic converter clogged or damaged?

YES → Replace the **catalytic converter** (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO ↓

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

↓

Visually check the condition of the engine wiring harness.

↓

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

↓

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP15

ALP 16	Engine rattling, noisy engine, turbocharger noise

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

If the noise arises from the turbocharger, apply **Technical Note 5164A, Noise fault finding.**

Note:
Pay close attention to faulty components that might result in unjustified replacement of the turbocharger. For example, whistling does not necessarily indicate damage to the turbocharger (this could be coming from the exhaust, the timing, the gearbox, etc.).

↓

Check that the fuel tank is correctly filled and that the appropriate fuel is used, use **TEST 13 Diesel fuel conformity check**.

↓

Check the levels of engine oil and coolant.

↓

Is the compression in order? — NO → Carry out the necessary repairs.

YES ↓

Check the electrical conformity of the **heater plugs** (the **resistance** of the heater plug must be **less than 2 Ω).**

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP16

ALP 16 CONTINUED	

A

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

Check the inlet air circuit, use **TEST 5 Inlet circuit check.**

Check the low pressure circuit, use **TEST 1 Low pressure circuit check.**

Check the injectors, use **TEST 3 Injector check.**

Check the high pressure system, use **TEST 6 High pressure system check**.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP 17	Blue, white or black smoke

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the fuel tank is correctly filled and that the appropriate fuel is used.
Run **TEST 13 Diesel fuel conformity check**.

↓

Check the levels of engine oil and coolant.

↓

Is the compression in order? — NO → Carry out the necessary repairs

YES ↓

Check the electrical conformity of the **heater plugs** (the resistance of the heater plug must be **less than 2 Ω).**

↓

Is the catalytic converter clogged or damaged? — YES → Replace the **catalytic converter** (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO ↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP17

ALP 17 CONTINUED	

A

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

Check the injectors, use **TEST 3 Injector check**.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

ALP 18	Smoke (black, white, or blue) when accelerating.

NOTES	Only address this customer complaint after a **complete check** with **the diagnostic tool**.

Check that the fuel tank is correctly filled and that the appropriate fuel is used.
Run **TEST 13 Diesel fuel conformity check**.

↓

Check the levels of engine oil and coolant.

↓

Check that the engine has not sucked up its oil (engine racing).

↓

Is the compression in order? — NO → Carry out the necessary repairs.

YES ↓

Check the electrical conformity of the **heater plugs** (the resistance of the heater plug must be **less than 2 Ω).**

↓

Is the catalytic converter clogged or damaged? — YES → Replace the **catalytic converter** (see **MR 388, Mechanical, 19B, Exhaust, Catalytic converter: Removal - Refitting**).

NO ↓

Check the inlet air circuit, use **TEST 5 Inlet circuit check**.

↓

(A)

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

DCM1.2_V08_ALP18

ALP 18 CONTINUED	

A

Check that the turbocharger is working correctly.
Run TEST 11 Air line at the turbocharger.
Run TEST 10 Turbocharger solenoid valve check.
Run TEST 12 Turbocharger.
Is the turbocharger correct?

NO → Carry out the necessary repairs.

YES

Visually check the condition of the engine wiring harness.

Using the diagnostic tool, check that the **injector codes (C2I)** are correctly entered on the identification screen. If not, configure the correct injector codes using command **SC002 Enter injector codes**

Check the low pressure circuit, use **TEST 1 Low pressure circuit check**.

Check the injectors, use **TEST 3 Injector check**.

Check the condition of the computer connections (bent pins, traces of oxidation, presence of silicone, etc.) and check that the computer connectors are properly locked.

Contact the Techline if the customer complaint is still present.

AFTER REPAIR	Carry out a road test followed by a check with the **diagnostic tool**.

NOTES	**Only consult these tests when applying a fault finding chart (ALP) or Interpretation of faults.**

Some specific checks are grouped together into tests and are performed as required in the various fault finding charts or when interpreting faults.

Low pressure circuit check	**TEST 1**
Electrical circuit check	**TEST 2**
Injector check	**TEST 3**
Inlet circuit check	**TEST 5**
High pressure system check	**TEST 6**
High pressure circuit sealing check	**TEST 7**
Injector return flow	**TEST 8**
Diesel filter check	**TEST 9**
Turbocharger solenoid valve check	**TEST 10**
Air line at the turbocharger	**TEST 11**
Turbocharger	**TEST 12**
Check the conformity of the diesel fuel	**TEST 13**

TEST 1	Low pressure circuit check

Check the conformity of the low pressure circuit connections.

Are the low pressure circuit connections in order?

NO → Carry out the necessary repairs.

YES

Check the condition of the priming bulb, and that it is working properly.

Look for leaks on the unions.

Are there leaks on the hoses and unions?

YES → Carry out the necessary repairs.

NO

Check for air bubbles in the diesel fuel.

Check for air bubbles in the low pressure circuit.

YES → Bleed the low pressure circuit.
Place a container under the filter.
- Disconnect the return hose from the filter and plug the filter.
- Pump using the priming bulb until there is no air left.
- Reconnect the return hose immediately.

NO

Low pressure circuit in order.

TEST 2	Electrical circuit check

Check the battery charge, and that the alternator is working properly (see **Technical Note 6014A (Renault) or Technical Note 9859A (Dacia), Charging circuit check**).

Is the charge circuit in order?

NO → Carry out the necessary repairs

YES ↓

Check the fuses (see **MR 388 Mechanical, 81C, Fuses, Fuses: List and location of components**).

Are the fuses in order?

NO → Carry out the necessary repairs

YES ↓

Check that the injection locking relay is in working order.

Is the injection locking relay working properly?

NO → Carry out the necessary repairs

YES ↓

Check the engine earths (see **Technical Note wiring diagrams for the vehicle**).

Are the engine earths in order?

NO → Carry out the necessary repairs

YES ↓

The electrical circuit is in order.

TEST 3	Injector check

Visually inspect around the injectors.
Is there diesel fuel around the injectors?

YES → Locate the source of the leak and carry out the necessary repairs.

NO ↓

Control the injectors with commands:
- **AC005: Cylinder 1 injector,**
- **AC006: Cylinder 2 injector,**
- **AC007: Cylinder 3 injector,**
- **AC008: Cylinder 4 injector.**

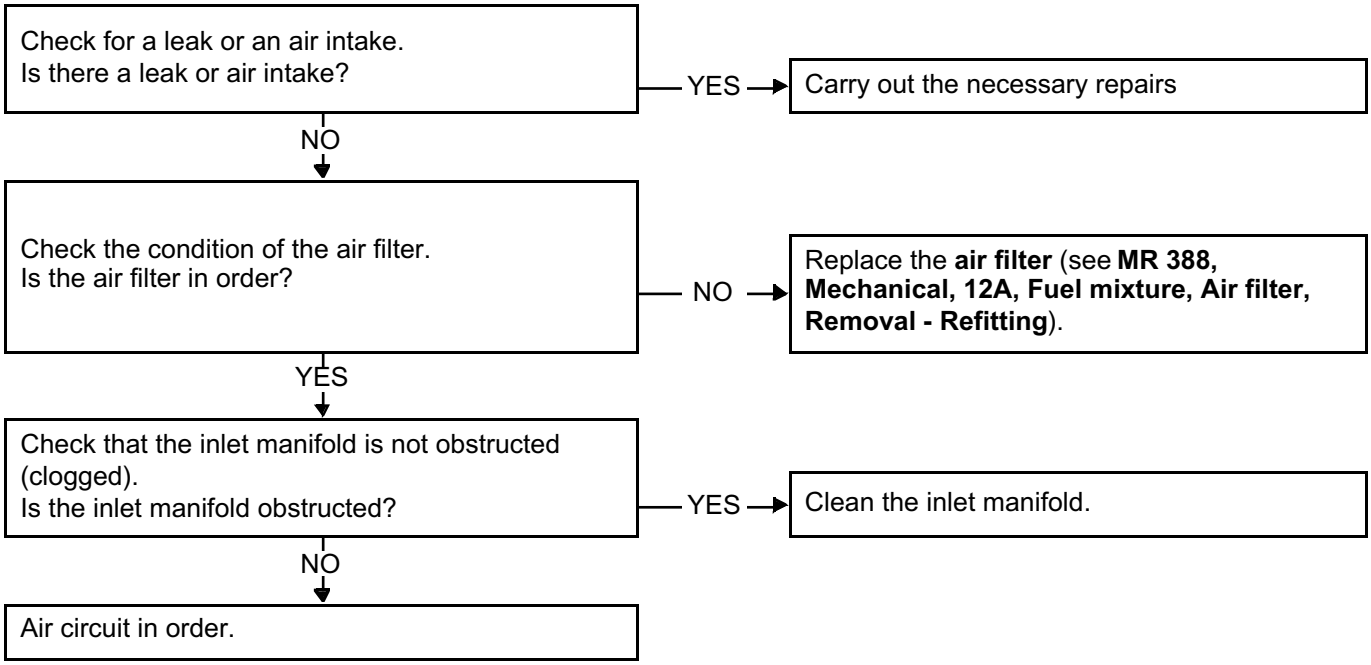
Can you hear the valve moving 1 metre from the vehicle?

NO → Check the **insulation** and the **continuity** of the electric circuit.
Run TEST 9 Diesel filter check.
If TEST 9 is correct, replace only the faulty injector(s) (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**).

YES ↓

End of test 3.

TEST 5	Inlet circuit check


Check for a leak or an air intake.
Is there a leak or air intake?
YES
Carry out the necessary repairs
NO
Check the condition of the air filter.
Is the air filter in order?
NO
Replace the air filter (see MR 388, Mechanical, 12A, Fuel mixture, Air filter, Removal - Refitting).
YES
Check that the inlet manifold is not obstructed (clogged).
Is the inlet manifold obstructed?
YES
Clean the inlet manifold.
NO
Air circuit in order.

DCM1.2_V08_TEST05

TEST 6	High pressure system check

NOTES	**Special note:** Certain faults make it impossible to carry out this test - deal with these first. **IMPORTANT** Running the starter motor for more than **5 seconds** does not serve any purpose and can be dangerous.

Preliminary checks:
– Check the presence of fuel.
– Check that there is no air in the low pressure circuit. Run **TEST 1**: **Low pressure circuit check**.
– Ensure that the correct fuel is being used. Run **TEST 13 Diesel fuel conformity check**.

The pump's capacity to produce high pressure can be checked by the following procedure:
– **With the ignition off, disconnect** the low pressure actuator from the pump **(IMV brown connector)** and connect a **test IMV** or the **MOT adapter. 1711**.
– Electrically disconnect the four injectors.
– Switch on the ignition, connect the diagnostic tool and re-establish dialogue with the injection system.
– Go to the **Main computer statuses and parameters** screen.
– Run the test cold, **PR064 Coolant temperature < 30˚C** or equal to the ambient temperature.
– Engage **the starter for 5 seconds**.
– During the test, read the maximum rail pressure value (PR038 Rail pressure) on the **diagnostic tool**.

PR038 > 1050 bar?

NO → A

YES → B

TEST 6 CONTINUED

A

- Switch off the ignition, reconnect the electrical connections to the four injectors and the low pressure actuator.
- Switch on the ignition again, and clear the injection faults using the **diagnostic tool**.
- Check for fuel leaks on the high pressure circuit. Run **TEST 7**: **High pressure circuit sealing check**.
- Check the conformity of the diesel filter. Run **TEST 9 Diesel filter check**.
- Carry out fault finding on the injectors by checking the return flow volume of the four injectors, run **TEST 8 Injector return flow**.

Is **TEST 8** correct?

NO

Replace the faulty injector(s) (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**)

B

The pump can supply the operating pressure. Switch off the ignition, reconnect the electrical connections to the four injectors and the low pressure actuator. Switch on the ignition again, and clear the injection faults using the **diagnostic tool**.

- Check for fuel leaks on the high pressure circuit, run **TEST 7 High pressure circuit sealing check**.
- Carry out fault finding on the injectors by checking the return flow volume of the four injectors, run **TEST 8 Injector return flow**.

If the **TEST 8** is correct, the high pressure fuel circuit is correct.

YES

Replace the high pressure pump (see **MR 388, Mechanical, 13B, Diesel injection, High pressure pump: Removal - Refitting**).

IMV = fuel flow actuator

TEST 7	High pressure circuit sealing check

NOTES	**Special note:** Certain faults make it impossible to carry out this test - deal with these first.

The command AC029 High pressure circuit sealing test enables a high pressure circuit sealing test to be carried out when the engine is running.
This command can locate a leak in the high pressure circuit if a union is incorrectly fitted or screwed on. This test does not identify a minor leak due to a union not being tightened to torque.
This command can only be used if the engine temperature is **above 60 °C**.
Watch out for any objects (tool or others) on the sides of the engine housing during the 4 accelerations (possible vibrations).
Run command **AC029 High pressure circuit sealing test**, the engine will automatically carry out a cycle of four accelerations to increase the rail pressure and check for leaks in the high pressure circuit.

TEST 8	Injector return flow

NOTES	**Special note:** Certain faults make it impossible to carry out this test - deal with these first.

Does the engine start? — NO → **A**

YES ↓

Command AC029 High pressure circuit sealing also checks the return volume of each injector to detect any leaks inside the injectors.

Watch out for any objects (tool or other) on the engine housing during the four cycles of the operation (possible vibrations).

Tooling required

– **Mot. 1711 Injector flow measuring kit.**
  Or: use four tubes of internal diameter **4 mm**, approximately **50 cm** long, and four graduated measuring cylinders.

Procedure

– Ensure that the engine coolant temperature is **above 60˚C**,
– switch off the ignition,
– disconnect the return pipes from the four injectors,
– cap the pump venturi tube to prevent the low pressure circuit from depriming,
– connect the four transparent tubes in place of the return pipes,
– put the other ends of the four pipes into four graduated measuring cylinders.

TEST 8 CONTINUED 1	

When all the preparations are complete, start the engine and leave it running:

For **30 seconds** at idle speed	for **euro 4 K9K 718 - 740 - 792 - 796** engines.

For **2 minutes** at idle speed	for **euro 3 K9K 790 - 794** engines.

Note:
It is essential to comply with these time periods for the correct interpretation of the test results.

– **Run** command **AC029 High pressure circuit sealing check**.
The engine will carry out automatically a cycle of four accelerations to increase the rail pressure and measure internal injector leaks under these conditions.

– **When the cycle has finished, run command AC029 High pressure circuit sealing test a second time** to obtain the correct return volume reading for each injector.

Switch off the engine at the end of the cycle.

TEST 8 CONTINUED 2	

At the end of the idling phase and the two cycles, the return volume for each injector should be:

45 ml (maximum)	for **euro 4 K9K 718 - 740 - 792 - 796** engines.

35 ml (maximum).	for **euro 3 K9K 790 - 794** engines.

If the return volume of one of the injectors is greater than the values above, replace only the faulty injector (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal – Refitting**).

Disconnect the 4 transparent pipes and reconnect the injector return circuit.

Carry out the following test to confirm the repair:
– With the ignition off, disconnect the low pressure actuator from the pump (brown IMV connector) and connect the test adapter **(test IMV, Mot.** 1711),
– electrically disconnect the 4 injectors,
– switch on the ignition, connect the **diagnostic tool** and re-establish dialogue with the injection system,
– go to the **Main computer statuses and parameters** screen,
– engage the starter for **5 seconds**,
– during the test, read the maximum rail pressure value **(PR038 Rail pressure)** on the diagnostic tool.

If the rail pressure (PR038 Rail pressure) is less than 1050 bar, run test 6 High pressure system check.

– Switch off the ignition, and reconnect the four injectors electrically,
– disconnect the test filling actuator (test IMV) and reconnect the low-pressure actuator (IMV) connector to the pump,
– switch on the ignition again, and clear the injection faults using the **diagnostic tool**.

If the rail pressure (PR038) is greater than 1050 bar, the repair is correct.
End of **TEST 8**.

TEST 8 CONTINUED 3	

A

If the engine does not start, only the static leakage can be measured, i.e. the leakage with the injector closed, not actuated and under high pressure.

Make sure that the ignition circuit is working correctly (minimum engine speed **200 rpm**).

Tooling required
– **Mot. 1711 Injector flow measuring kit.**
Or: Use four tubes with internal diameter **4 mm** and approximately **50 cm long and a test adapter (TEST IMV)**.

Procedure
– **Switch off the ignition**,
– disconnect the return pipes from the four injectors,
– cap the pump venturi tube to prevent the low pressure circuit from depriming,
– connect the four transparent pipes in place of the return pipes **(Mot. 1711)**,
– disconnect the low pressure actuator from the pump (**brown IMV connector**) and connect a **test IMV** or the **Mot. 1711** adapter,
– **disconnect the four injectors electrically**,
– switch on the ignition and engage **the starter for 5 seconds**,
– measure the amount of diesel fuel in each pipe.

If the leakage return is greater than 10 cm, replace the injector(s) (see **MR 388, Mechanical, 13B, Diesel injection, Diesel injector: Removal - Refitting**).

Switch off the ignition, and reconnect the four injectors electrically.
Disconnect the test low pressure actuator and reconnect the low pressure actuator connector to the pump. Disconnect the four transparent tubes and reconnect the injectors return circuit. Switch on the ignition again, and clear the injection faults using the diagnostic tool.

TEST 8 CONTINUED 4	

Carry out the following test to confirm the repair:
– **With the ignition off, disconnect the** low pressure actuator from the pump **(brown IMV connector)** and connect the test adapter **(test IMV, Mot. 1711)**,
– disconnect the four injectors electrically,
– switch on the ignition, connect the **diagnostic tool** and re-establish dialogue with the injection system,
– go to the **Main computer statuses and parameters screen**,
– run **the starter for 5 seconds**,
– read the maximum rail pressure value **PR038 Rail pressure** during the test on the **diagnostic tool**.

If the rail pressure (PR038 Rail pressure) is less than 1050 bar, run TEST 6 High pressure system check.
– Switch off the ignition, and reconnect the four injectors electrically,
– disconnect the test IMV and reconnect the low pressure actuator connector to the pump,
– switch on the ignition again, and clear the injection faults using the **diagnostic tool**.

End of **TEST 8**.

TEST 9	Diesel filter check

Check the conformity of the diesel filter.

Is the diesel filter in order?

NO → **Replace the filter with an original part** (see **MR 388, Mechanical, 13A, Fuel supply, Fuel filter: Removal - Refitting**).

YES ↓

Switch off the ignition and analyse the diesel fuel in the diesel filter.
- Disconnect the diesel supply and return hoses from the filter.
- Block the filter inlets and outlets straight away with appropriate plugs.
- Remove the filter from its holder and **shake it well**, keeping the plugs in place and empty the contents of the filter into a glass container by lifting up a protective cap and undoing the bleed screw.

Check to see if there is a deposit of black particles at the bottom of the container.

NO ↓

Diesel filter in order.

YES ↓

Pass a magnet beneath the container to collect all the metal particles.
Take the magnet away from the container.

Do the particles gathered using the magnet cover a surface area greater than 1 cm^2?

NO ↓

Diesel filter in order.

YES ↓

Replace the entire injection system.

TEST 10	Turbocharger solenoid valve check

Check the vacuum at the pressure regulator inlet
Run the engine at idle speed.

Check the engine temperature using the CLIP parameter **PR064 Coolant temperature**.
Let the engine warm up until the temperature reaches **80˚C**.

Disconnect the vacuum pipe of the end piece of the pressure regulator.
Connect a vacuum pressure gauge **to the end of the disconnected pipe** and put it in the **vacuum measurement** position.

Perform a quick acceleration by depressing the accelerator pedal completely and then releasing it immediately.
The total duration of pressing and holding in the full load position must not exceed **1 s**.
During this acceleration, the engine speed must reach a value between **3000 and 4000 rpm**.

Repeat the operation 3 times.

Read the maximum vacuum posted by the pressure gauge during the increase and decrease in the speed and after the return to idle speed.

Tolerance intervals for the vacuum are:
-1 bar < CORRECT vacuum value < - **0.6 bar**
-0.6 bar < INCORRECT vacuum value < **0 bar**

Is the vacuum at the turbocharging pressure regulator inlet, posted by the pressure gauge within the tolerance interval?

NO → A

YES → The solenoid valve is in order.

TEST 10 CONTINUED 1	

A

Reconnect the vacuum pipe on the turbocharging pressure regulator

Checking the vacuum at the solenoid valve outlet
Leave the engine running at idle speed.

Disconnect the vacuum pipe from the end piece of the solenoid valve outlet.
This pipe connects the solenoid valve to the turbocharging pressure regulator.

Connect a vacuum pressure gauge **to the solenoid valve outlet** and put it in the **vacuum measurement** position.

Perform a quick acceleration by depressing the accelerator pedal completely and then releasing it immediately.
The total duration of pressing and holding in the full load position must not exceed **1 s**.
During this acceleration, the engine speed must reach a value between **3000 and 4000 rpm**.

Repeat the operation 3 times.

Read the maximum vacuum posted by the pressure gauge during the increase and decrease in the speed and after the return to idle speed.

Tolerance intervals for the vacuum are:
-1 bar < CORRECT vacuum value **< - 0.6 bar**
-0.6 bar < INCORRECT vacuum value < **0 bar**

Is the vacuum displayed by the pressure gauge at the solenoid valve outlet within the tolerance interval?

NO

Reconnect the vacuum pipe on the turbocharging pressure regulator.

B

YES

Replace the vacuum pipe between the solenoid valve and the turbocharging pressure regulator (see **MR 388**, **12B Turbocharging**).

TEST 10 CONTINUED 2	

B

Visual inspection of the electrical connector of the solenoid valve
Switch off the engine.
Note:
The requested checks are only visual.

1. Check that the connector is correctly connected and locked.
2. Check the absence of damage to the electric wires where they leave the installation.
3. Disconnect the connector to continue the checks.
4. Check the absence of thermal damage to the unit and mechanical damage to the lock.
5. Check the absence of deformations of the contacts (clips and tabs).
6. Check the sealing of the connector.

Do the visual inspections show any damage?

NO → C

YES → Refer to **Technical Note 6015A (Renault) or Technical Note 9804A (Dacia), Repairing electrical wiring, Wiring: Precautions for repair**. → A

TEST 10 CONTINUED 3	

C

Checking the vacuum at the solenoid valve inlet
Run the engine at idle speed.

Disconnect the vacuum pipe from the end piece of the solenoid valve inlet.
This pipe connects the vacuum pump to the turbocharger solenoid valve.

Connect a vacuum pressure gauge **to the end of the disconnected pipe** and put it in the **vacuum measurement** position.

Read the vacuum posted by the pressure gauge.

Tolerance intervals for the vacuum are:
-1 bar < CORRECT vacuum value < **-0.85 bar**
-0.85 bar < INCORRECT vacuum value < **0 bar**

Is the vacuum displayed by the pressure gauge at the solenoid valve inlet within the tolerance interval?

NO

Carry out the following operations.
– Reconnect the vacuum pipe to the turbocharger solenoid valve.
– Check the conformity of the vacuum pipe connections.
– Visually check the condition of the vacuum pipes leaving the vacuum pump to the different supplied components.

Refer to the repair manual (see **MR 388, 12B Turbocharging**).

YES

Replace the solenoid valve (see **MR 388, 12B turbocharging**).

TEST 11	Air line at the turbocharger

Check that the air filter is present.
Check the replacement interval of the air filter on the maintenance booklet.
Compare the part nos. of the fitted air filter on the vehicle and of the air filter recommended by the manufacturer.
Check the direction of fitting of the air filter.

Is the air filter correctly fitted on the vehicle?

YES ↓

Check the condition of the air filter
Visually inspect the condition of the filtering section of the air filter.
Is the air filter or its seal damaged?
Is the air filter fouled (does it contain a lot of impurities)?

YES → Replace the air filter (see **MR 388, Mechanical, 12A, Fuel mixture**, **Air filter, Removal - Refitting**).

NO ↓

Low pressure circuit check
Note:
Depending on the vehicle type, the best visual access will be either from above or from below.

Visually inspect the condition of the following components:
– fresh air inlet scoop on the front panel of the vehicle,
– air inlet pipe to the air filter,
– air pipe of the filter until the compressor inlet,
– mountings of the air flowmeter.

Is one of these components incorrect (pipes dislodged, torn, bent, pierced or kinked)?

YES → Replace the defective parts (see **MR 388, Mechanical, 12B, Turbocharging)**.

NO ↓

A

TEST 11 CONTINUED	

A

High pressure circuit check
Note:
Depending on the vehicle type, the best visual access will be either from above or from below.
Visually inspect the condition of the following components:
– compressor outlet pipe to the turbocharging air cooler (on some engines, there is no turbocharging air cooler),
– outlet pipe of the turbocharging air cooler to the inlet manifold,
– inlet manifold,
– pressure and temperature sensors.
Is one of these components incorrect (pipes dislodged, torn, bent, pierced or kinked)?

YES → Replace the defective parts (see **MR 388, Mechanical, 12B, Turbocharging**).

NO

Exhaust circuit check
– Visually inspect the condition of the following engine sections:
– from the exhaust manifold circuit to the turbocharger turbine,
– from the turbine outlet pipe to the end of the exhaust pipe,
– from the inlet manifold to the EGR valve,
– pressure and temperature sensors connected.
Do certain of these components have blackish or whitish traces?

YES →

NO

Run **TEST 10: Turbocharger solenoid valve check**.

TEST 12	Turbocharger

IMPORTANT
Perform these checks without removing the turbocharger and with the vehicle ignition switched off.

Checking the turbocharger shaft

IMPORTANT
Observe the following safety precautions:
– wear high temperature protective gloves when the engine is hot,
– do not wear oversize or baggy clothing or hanging jewellery,
– watch for possible triggering of the motor-driven cooling fan unit and the operation of the accessories belt or belts.

Note:
The turbocharger shaft is the shaft that connects the compressor wheel and the turbine wheel.
Depending on the vehicle type, the best visual access will be either from above or from below.

Disconnect the air pipe located between the turbocharger and the air filter.

Wearing gloves, check the operation of the turbocharger shaft by turning the vanes manually without forcing.

Does the shaft have a kickdown point in rotation?

Does the compressor wheel touch the casing of the turbocharger?

If for these 2 **questions** the response is **NO**

A

If **YES** for **one of these 2 questions**

Replace the turbocharger (see **MR 388, Mechanical, 12B, Turbocharging, Turbocharger: Removal - Refitting** and **Technical Note 3938A, Broken turbocharger: replacement instructions**).

TEST 12 CONTINUED 1	

A

Check the condition of the turbocharger vanes.

Note:
This check is facilitated by using a mirror and a lamp.
Depending on the vehicle type, the best visual access will be either from above or from below.
Visually check that the compressor vanes are in good condition.
Are the vanes damaged or twisted?

YES

Replace the turbocharger (see **MR 388, Mechanical, 12B, Turbocharging, Turbocharger: Removal - Refitting** and Technical Note 3938A, Broken turbocharger: replacement instructions).

NO

Which type of turbocharger is it?

Variable geometry turbocharger	Fixed geometry turbocharger

B

C

TEST 12 CONTINUED 2	

B

Checking the turbocharging pressure regulator to determine if it is a variable geometry turbocharger

Note:
The pressure regulator rod of a variable geometry turbocharger is orthogonal to the turbocharger shaft.
Variable geometry turbochargers are controlled by a solenoid valve.
Depending on the vehicle type, the best visual access will be either from above or from below.

Note:
If necessary, according to the vehicle type and the accessibility of the pressure regulator, connect the vacuum pump to the end of the pressure regulator pipe at the solenoid valve outlet.

Using a **manual vacuum pump**, apply a vacuum on the turbocharging pressure regulator of approximately **650 mbar**.

1. Check that the fitting is completely leaktight.
2. Check that the control rod **is resting against its stop**.
3. Lock the **vacuum device** and check that the pressure variation is not greater than **100 mbar in 10 s**.
4. Release the pressure and check that the control rod comes back to its initial position without jerking.

Repeat the complete sequence 3 times.

Is the pressure regulator leaktight and is the rod movement correct?

YES

The turbocharger is correct.
End of procedure.

NO

Replace the turbocharger (see **MR 388, Mechanical, 12B, Turbocharging, Turbocharger: Removal - Refitting** and Technical Note 3938A, Broken turbocharger: replacement instructions).

TEST 12 CONTINUED 3	

C

Checking the turbocharging pressure regulator to determine if it is a fixed geometry turbocharger

Note:
The pressure regulator rod of a fixed geometry turbocharger is aligned with the turbocharger shaft.
Fixed geometry turbochargers are controlled by a solenoid valve.
Depending on the vehicle type, the best visual access will be either from above or from below.

Note:
If necessary, according to the vehicle type and the accessibility of the pressure regulator, connect the vacuum pump to the end of the pressure regulator pipe at the solenoid valve outlet.

Using a **manual vacuum pump**, apply a vacuum on the turbocharging pressure regulator of approximately **650 mbar**.

1. Check that the fitting is completely leaktight.
2. Check that the control rod **moved several millimetres**.
3. Lock the **vacuum device** and check that the pressure variation is not greater than **100 mbar in 10 s**.
4. Release the pressure and check that the control rod comes back to its initial position without jerking.

Repeat the complete sequence 3 times.

Is the pressure regulator leaktight and is the rod movement correct?

YES

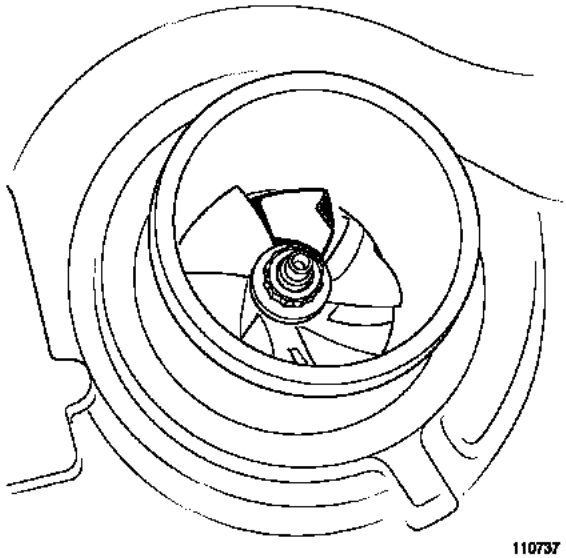
The turbocharger is correct.
End of procedure.

NO

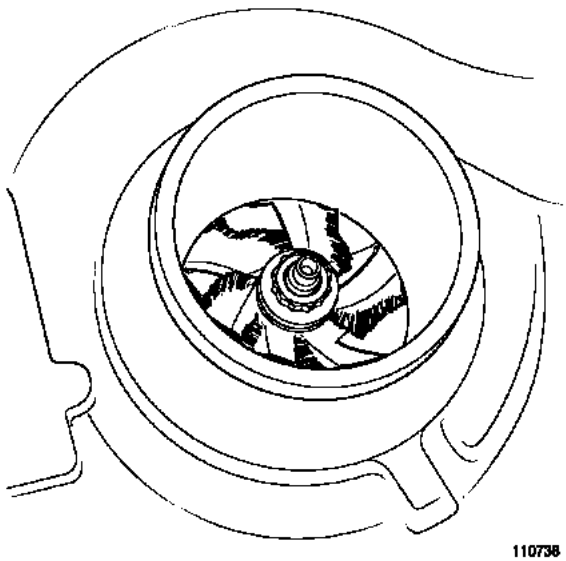
Replace the turbocharger (see **MR 388, Mechanical, 12B, Turbocharging, Turbocharger: Removal - Refitting** and Technical Note 3938A, Broken turbocharger: replacement instructions).

TEST 12 CONTINUED 4	

Deformed, twisted blade ("soft" foreign body)



Broken blades ("hard" foreign body)



End of TEST 12

TEST 13	Check the conformity of the diesel fuel

IMPORTANT
During this operation, it is essential to:
– refrain from smoking or bringing incandescent objects close to the work area,
– protect yourself against fuel splashes due to residual pressure in the pipes,
– wear glasses with side covers,
– wear waterproof gloves (Nitrile type).

IMPORTANT
– To prevent corrosion and damage, protect any sensitive areas from fuel spills.
– To prevent pollution from entering the circuit, place protective plugs on all fuel circuit components that are in contact with the open air.

Preparations:
Weigh a **1300 ml empty plastic pot (part number 77 11 171 413)** with its cover **(part number 77 11 171 416**) using an electronic scale similar to those used in body paint workshops (for example: **PANDA part no. 77 11 224 995**). Make a note of the weight of the empty plastic pot.
The plastic pot is in material used for paintwork preparation.

Take a **1 l** fuel sample from the **diesel fuel filter outlet** (see **MR 388, Mechanical, 19C, Tank, Draining the fuel tank**), using a pneumatic transfer pump (**part no. 634-200**) and place it in the **1300 ml** plastic pot.
Close the plastic pot with its cover and leave the fuel to rest for approx. **2 min**.

Is the fuel cloudy or does it separate into 2 parts?

YES → Presence of water in the diesel fuel, the fuel is not in conformity. Drain the fuel circuit, including the tank (see **MR 388, Mechanical, 19C, Tank, Draining the fuel tank**).

NO → A

TEST 13 CONTINUED 1	

A

Weigh the diesel fuel and note the value while subtracting the empty weight of the plastic pot with its cover.
Is the fuel weight within the min. and max. value of the table below?

Calculated weight (g.)		Fuel temperature (˚C)
Min. weight:	Max. weight:	
821	846	13
821	846	14
820	845	15
819	844	16
819	844	17
818	843	18
817	842	19
816	841	20
816	841	21
815	840	22
814	839	23
814	839	24
813	838	25

Check the fuel temperature by plunging a thermometer in the plastic pot.

YES → B

NO → C

TEST 13 CONTINUED 2	

B
YES

End of **TEST 13**

C
NO

The fuel is not compliant.
If the fuel weight is less than the min. terminals, it means there is petrol in the diesel fuel.
If the fuel weight is greater than the max terminals, it means there is oil in the diesel fuel.
Drain the fuel circuit, including the tank (see **MR 388, Mechanical, 19C, Tank, Draining the fuel tank**).

Note:
If the measured weight reaches limit values, the measurement may be carried out with a **2230 ml plastic pot (part no. 77 11 171 414)** and its cover **(part no. 77 11 171 417):**
– Carry out a fast driving test so as to mix the fuel and then take a **2l** fuel sample.
– Redo the operations and check the result by multiplying the threshold values by 2.

If the customer has any doubts or there is any dispute, contact the Techline.